ENGINEERING NEWS-RECORD

Hyperion outfall pulled 7 miles in 7 days p. 33

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UNIVERSITY MICROFILMS IN
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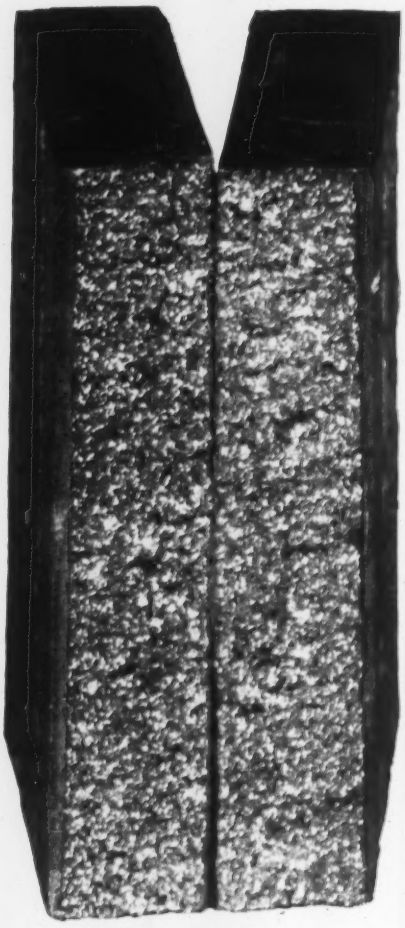


Wrought Iron **Steel**

HERE IS THE DIFFERENCE

These are actual photographs of fractured pieces of wrought iron and steel. Photo at left shows how the fibrous structure of wrought iron differs from that of steel.

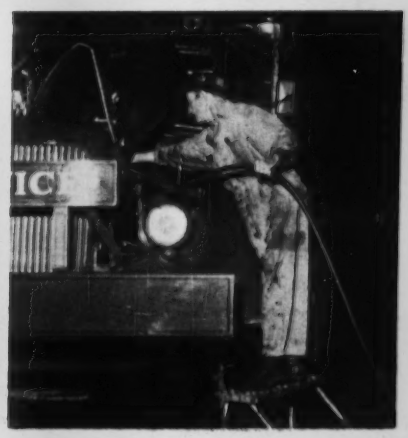
Many thousands of glasslike iron silicate fibers entrained in the pure base metal account for wrought iron's unique structure. Duplicated in no other metal, this structural feature gives wrought iron its superior resistance to corrosion and fatigue stresses.

While *initial* cost may be higher, case histories of countless applications prove wrought iron the most economical buy because it lasts so long in actual service. Ask the Byers Field Service Engineer to show you fractured pieces similar to those shown above. For further information write for our booklet, *Piping for Permanence*. A. M. Byers Company, Clark Building, Pittsburgh 22, Pennsylvania.

BYERS Wrought Iron Tubular and Hot Rolled Products

ALSO ELECTRIC FURNACE QUALITY STEEL PRODUCTS

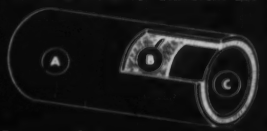
Corrosion costs you more than Wrought Iron



GOODYEAR INDUSTRIAL PRODUCTS

GM-Specified

ORTAC HOSE for Universal Use



A Extra-tough cover resists weather, oil, sun, abrasion

B Vertical braids of high-tensile rayon cord for exceptional strength with great flexibility

C Tube that resists oil, gasoline, solvents, air and water

ORTAC (Oil-Resistant Tube and Cover) is available in long, continuous lengths in sizes from 3/16" to 1½ i.d.

It's really five hoses rolled into one!

You've never seen anything like ORTAC by Goodyear. With this one hose, you can feed compressed air to drills—gas up trucks and rolling stock—feed lubricants to equipment—carry water—even handle weak acids and alkalies should the need arise. In fact, it does all the jobs that used to call for five different kinds of hose—does them all easily and safely, too.

And ORTAC is recommended for the ruggedest kind of service by the G.T.M.—Goodyear Technical Man. For its tube is of CHEMIGUM, Goodyear's exclusive rubber synthetic that's exceptionally oil-resistant. It's heavily muscled to take constant dragging over rocks and rubble—everlasting stretching and straining—habitual rough handling. Yet it's amazingly flexible and easy to use.

It's easy to see, then, how a five-use hose like this eliminates any need for a large hose inventory—can substantially cut your costs on every job. For the full ORTAC story, contact your nearest Goodyear Distributor or write:

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THE GREATEST NAME IN RUBBER

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IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

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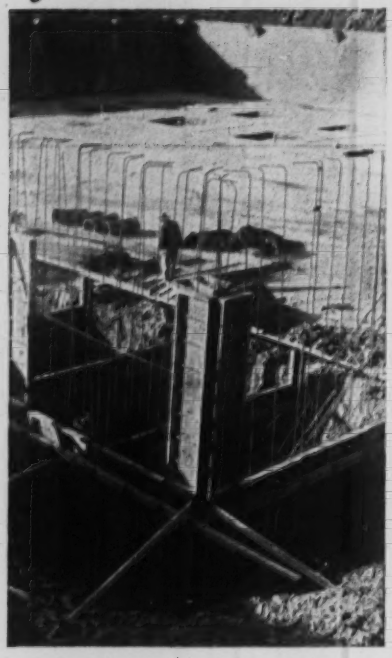

Contractor Saves 40% with Symons Forms . . .

7,500 square feet of Symons Standard Forms were used in the new 2 million gallon capacity pumping station at Melrose Park, Illinois. 2,000 cubic yards of concrete were used on the job and the concrete contractor, Louis Macro Company, Melrose Park, reported a 40 per cent saving through the use of Symons Forms. Walls for the job were completed in three pours.

Symons engineering service can help you realize substantial savings in forming. With your plans, our engineers will prepare a complete form layout, bill of materials, and make recommendations for the most efficient and cost saving method of forming.

Our field service representatives are sales engineers, ready and able to advise you on form erection, pouring and stripping methods that will help you save time, labor and materials. You can call on them to assist you on any forming problems.

Symons Forms can be rented with purchase option. Symons Clamp & Mfg. Co., 4265 Diversey Avenue, Dept. G-7, Chicago 39, Illinois.

Sam Cerniglia Company, Melrose Park, Illinois
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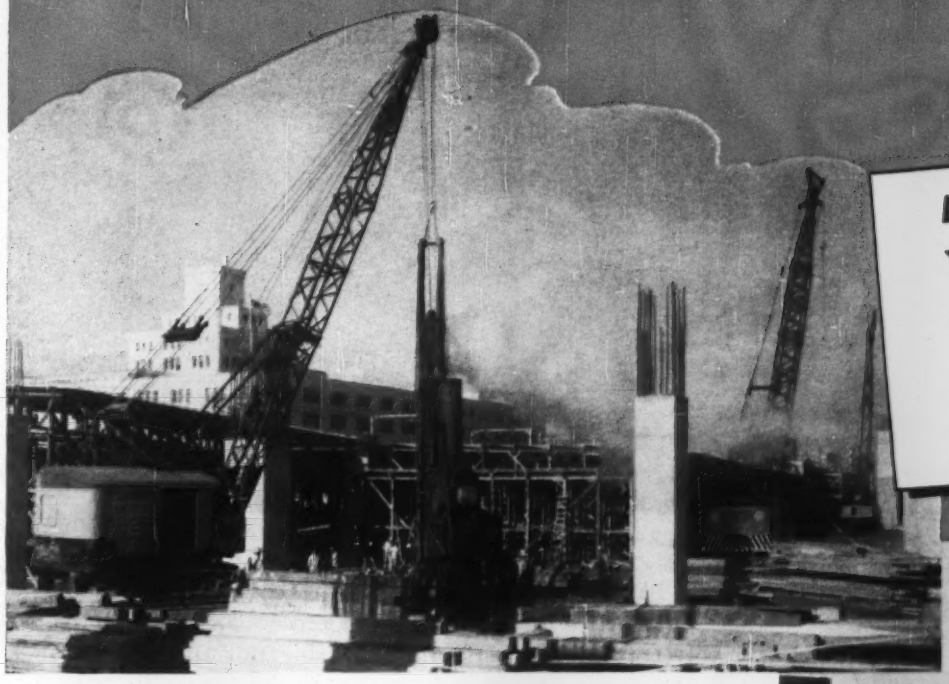
MacDONALD, YOUNG & NELSON, INC.

San Francisco, California



MacDONALD, YOUNG & NELSON of San Francisco, know what Northwest Cranes can do. They have proved Northwests on the great Embarcadero job on San Francisco's Bay Shore. Here, their Northwests were called upon to do every conceivable type of crane work from pile driving to simple lifting. As proof of Northwest crane superiority. they have recently added a Northwest Truck Crane to their fleet, making 12 Northwests that MacDonald, Young & Nelson have bought.

Northwest Cranes bring you every advantage for smooth handling, smooth booming and high job production. There is a wide range of boom hoist equipment. You can have booming independent of all other operations with power both up and down. The 3rd Drum gives you three load lines. Uniform Pressure Swing Clutches eliminate the grabs and jerks that make spotting the load both unsafe and difficult. The "Feather-Touch" Clutch Control assures ease of operation without resorting to pumps, compressors and other delicate mechanisms; but more than that, it retains the *feel of the load* which gives the operator greater accuracy at the "hook."

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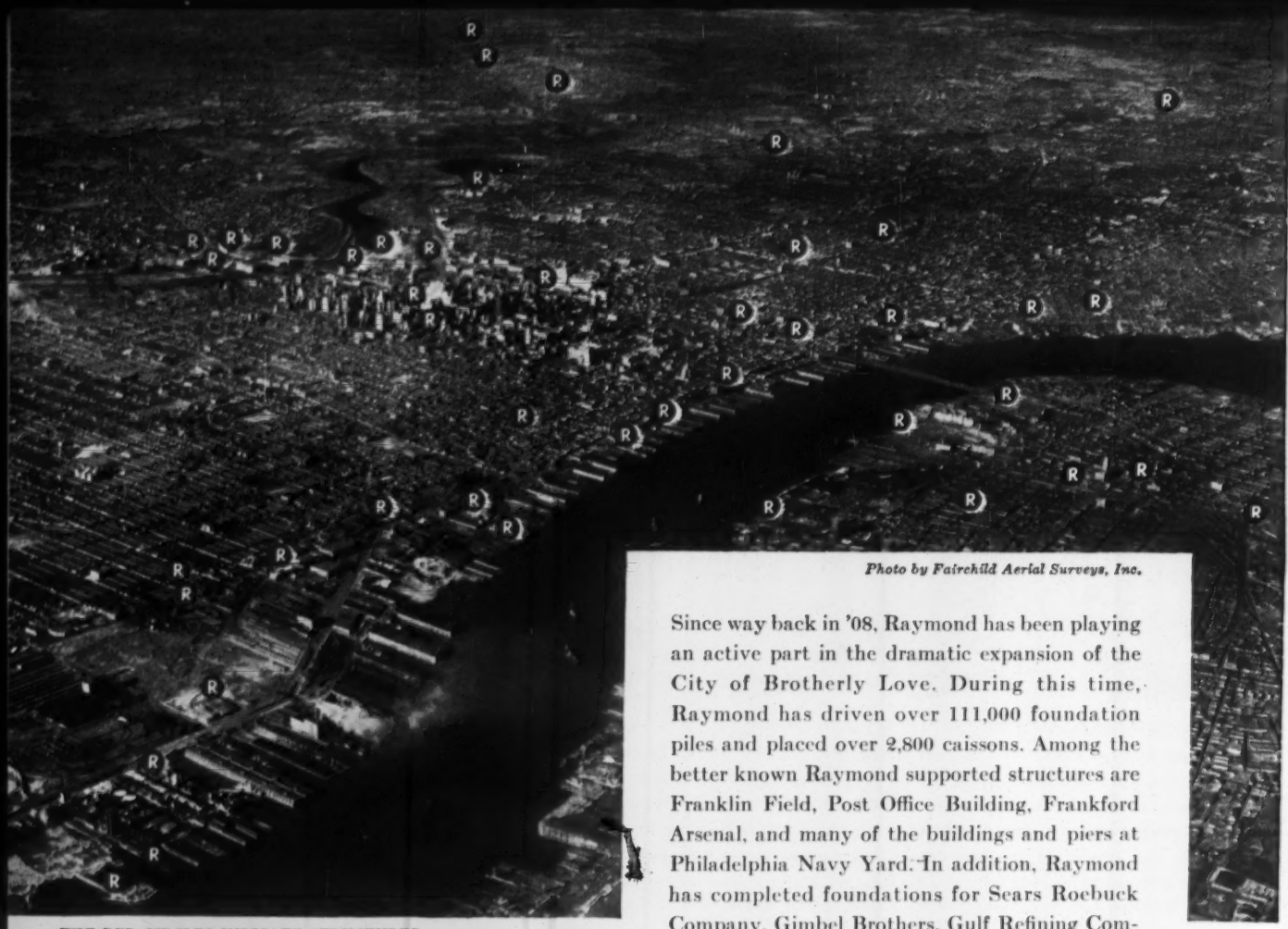

THE RED CIRCLES INDICATE STRUCTURES BUILT ON RAYMOND FOUNDATIONS

Photo by Fairchild Aerial Surveys, Inc.

In Philadelphia... 347 STRUCTURES *REST ON* RAYMOND FOUNDATIONS

Since way back in '08, Raymond has been playing an active part in the dramatic expansion of the City of Brotherly Love. During this time, Raymond has driven over 111,000 foundation piles and placed over 2,800 caissons. Among the better known Raymond supported structures are Franklin Field, Post Office Building, Frankford Arsenal, and many of the buildings and piers at Philadelphia Navy Yard. In addition, Raymond has completed foundations for Sears Roebuck Company, Gimbel Brothers, Gulf Refining Company, Phillips Petroleum, Atlantic Refining Company and well over a hundred other clients.

Across the country in other major cities, too, wherever construction is in progress, you'll likely see the blue sign indicating Raymond men and methods are at work. Talk to your nearest Raymond engineer. Let him explain how our 60 years of experience can aid you on your next foundation or heavy construction project.

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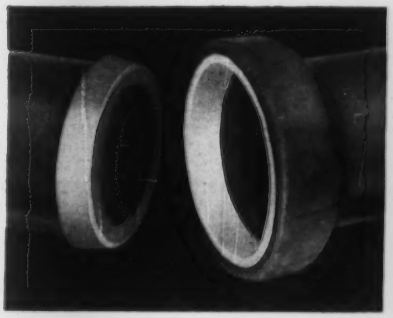
You are cordially invited to send for our new Highway Brochure, which gives a detailed resume of how Raymond can help you and the National Highway Program. Just write **Dpt. E-14,** Raymond Concrete Pile Co., 140 Cedar Street, New York 6, N. Y.

Protect your community's health SIX WAYS with longer, stronger AMVIT Clay Pipe

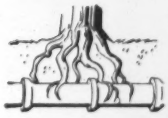
Outstanding Mechanical Joint on pipe over 4 feet long One of your City's Lifelines



Each year thousands of taxpayer's dollars are *wasted* on "substitute" materials used in sewer lines. Failure and collapse of non-clay sewers endangers the health of the community. Sewers must be constructed of permanent materials for they carry to safe disposal thousands of tons of waste laden with dangerous and deadly bacteria.

Amvit Jointed Clay Pipe gives decades of uninterrupted underground service. Neither joint nor pipe is affected by these factors:

1. ROOTS

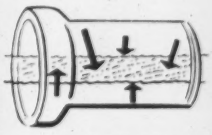


force the pipe out of line and clog the system in search of moisture. Amvit is a compression joint on the ball and socket principle. The surfaces of both bell and spigot are in constant compression. Roots cannot enter the line.

2. CHEMICAL ATTACK

is from acid-laden, high temperature sewage, discharged from dishwashers, garbage disposal units and washing machines. Like the clay pipe, Amvit Joint is acid resistant and will not corrode or decompose.

3. FLOW LINE ATTACK



refers to that section of the pipe which lies between low and high water. Grease and scum tend to build up here and acts as a solvent on certain synthetic substitute pipes. The design of the Amvit Joint assures that the pipe is self centered at all times. This gives perfect alignment and self-cleansing.

4. EROSION

is the wearing out of pipe by abrasive action of sand and gravel. Soft pipes become scratched and roughened and tend to clog up. Because Amvit is a really tight joint, no foreign matter can possibly enter the line.

5. DECOMPOSITION

is the chemical breakdown of the component elements of the pipe. Only clay pipe resists decomposition. Like the pipe, the joint is unaffected by ordinary conditions of underground service.

6. RODENTS AND TERMITES

will gnaw away wrappings and coatings of pipe. Amvit Clay Pipe defies even the sharpest toothed rodent and is immune to termite attack.

For more information on how Amvit can help cut your sewer project costs, write or call American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

SINCE 1900

American Vitrified Products Company

MANUFACTURERS OF: Clay Pipe, Flue Liners, Clay Liner Plates and Concrete Pipe.

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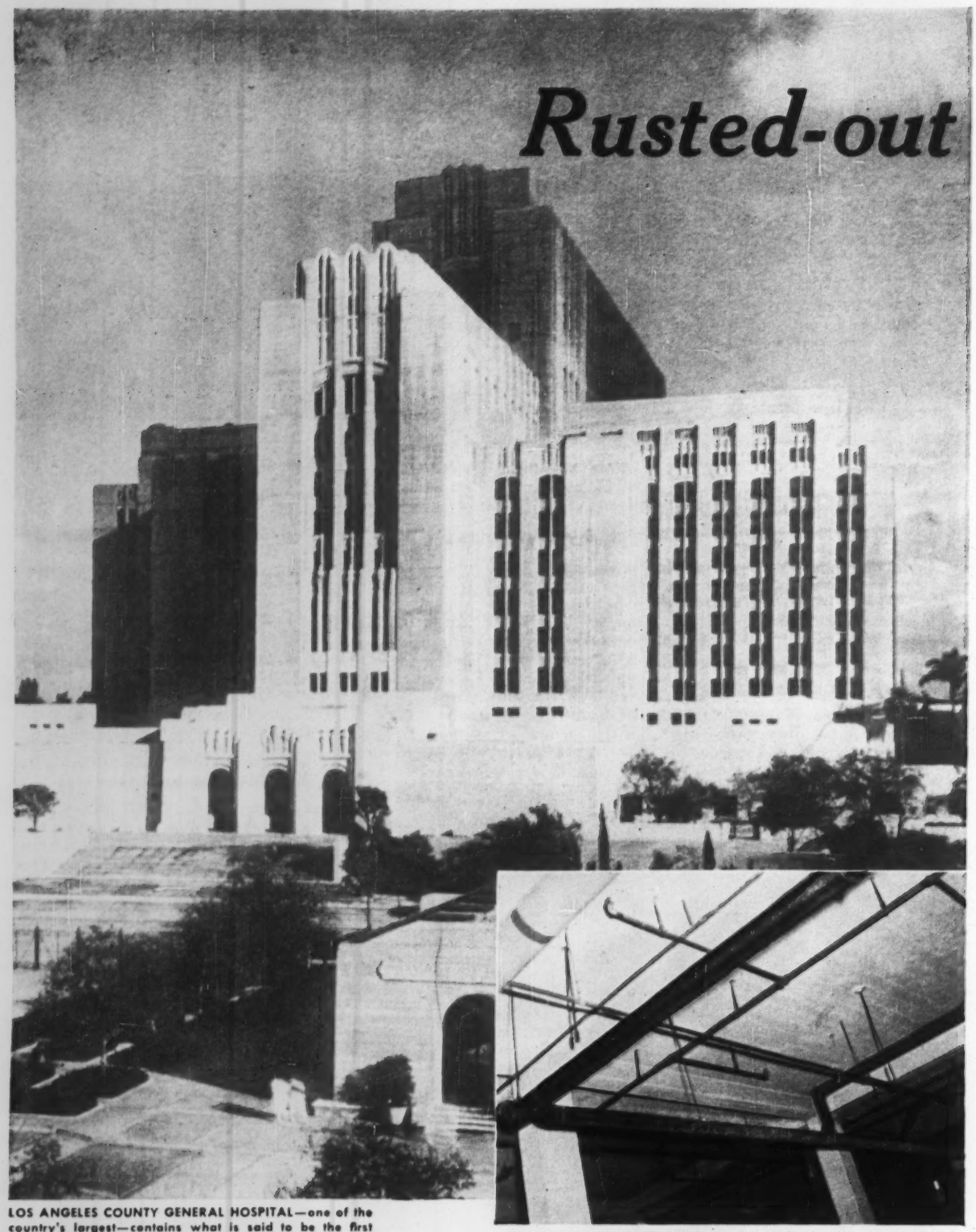

LOS ANGELES COUNTY GENERAL HOSPITAL—one of the country's largest—contains what is said to be the first Copper Drainage System of its kind west of the Mississippi.

IN LONG RUNS LIKE THIS installation is speedier because there are fewer fittings with Revere Copper Water Tube. And, due to its lightness there is no support problem. 3,200 feet of Revere Type "K" Copper Tube, in sizes of 2", 3", and 4" were used in the drainage lines.

drainage lines replaced

with enduring

REVERE COPPER TUBE

• without interruption of kitchen service • at less cost than a duplicate, rustable drainage line

Revere Copper Tube was made to order for this job. Not only will it prevent future rust trouble, but the kitchen continued to have drainage service. For, with Revere Copper Tube, using solder fittings, it was possible to run a line right alongside of the failed line . . . something which the plumbing foreman on the job said would have been virtually impossible had the line been replaced with duplicate, rustable drainage material.

This was because the small amount of space in the tunnels through which the lines ran would not permit sufficient room to caulk the joints, while the solder joints used with Revere Copper Tube were readily made.

In addition, D & D PLUMBING & HEATING CO., of Bell Gardens, California told us that the Revere Copper Tube drainage line was fabricated and installed for a lower price than would have been the case had standard drainage material been used. Here are the reasons why:

1. Revere Copper Drainage Tube is easier to handle, weighing, with fittings, only about ¼ as much as ferrous materials.

2. Revere Copper Drainage Tube comes in standard 20′ lengths so fewer joints are needed on long runs.

3. Revere Copper Drainage Tube and fittings are installed by a simple soldering operation. No caulking or threading, and soldered joints are water and gas-tight. No wrench-space worries.

4. Revere Copper Drainage Tube Assemblies can be prefabricated in the shop or on the job with no danger of weakening joints when handling, thus saving time and costs.

5. Revere Copper Drainage Tube requires less space in walls. No wide walls or build-outs. Where 3″ vent stacks are permitted, they will fit inside a standard 4″ stud partition.

6. Revere Copper Drainage Tube is gun-barrel smooth inside and out, frictional resistance to flow is low, and clogging due to corrosion or waste build-up is virtually non-existent.

These same features, which are inherent in various types of Revere Copper Water Tube, make it the preference of contractors, architects and engineers for radiant panel heating, hot and cold water lines, underground service lines and processing lines. See the Revere Distributor nearest you for your needs.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

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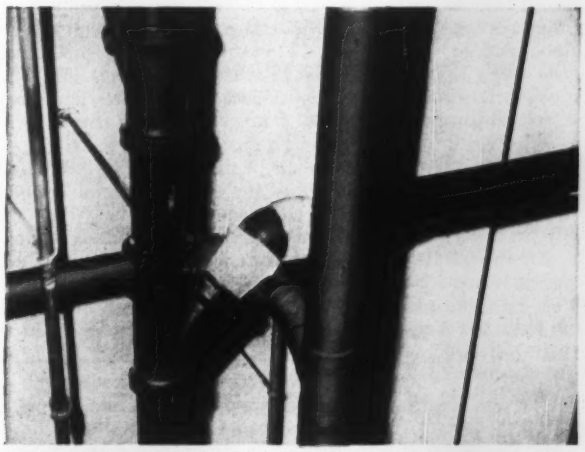
Mills: Baltimore, Md.; Rome, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.

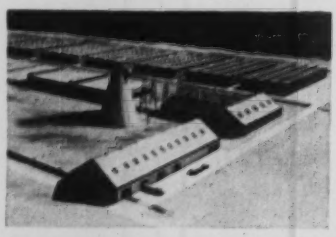


OLD KITCHEN DRAINAGE LINES with new Revere Copper Tube installed alongside. Because the kitchen was in use almost 24 hours a day, the drainage lines took a severe beating. Result: stoppages often occurred and a snake had to be used repeatedly. Holes were eventually poked through the pipe and had to be covered with tape and tar to prevent leakage. With smooth-finish Revere Copper Water Tube frictional resistance will be low and clogging due to corrosion or waste build-up practically impossible.

IT'S IN CLOSE QUARTERS LIKE THIS that Revere Copper Water Tube really shines. For the solder fittings used require no wrench space and its small sizes make installation of Revere Copper Water Tube, in the tightest corners, a cinch. The Revere Tube on this job was supplied to the D & D PLUMBING & HEATING COMPANY of Bell Gardens, California by AMSTAN SUPPLY DIVISION OF AMERICAN-STANDARD, Los Angeles Branch.

A Winning Case

FOR TIMBER — ENGINEERED BY TECO



Thirty-four 70-foot span Belgian roof trusses were used by the Olin Mathieson Chemical Corporation for 45,500 square feet of post-free working area in their new Frostbrand Hardwood flooring plant in Shreveport, Louisiana.

Teco roof trusses with 4" Wedge-Fit split rings were built at a savings of 43% of the estimated cost of steel framing.

Design data are available to you for jobs you are planning. Let us know your requirements.

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Reader Comment

Pennsylvania Leads

Sir—Your article discussing the proposed state water plan for the Raritan River (ENR May 23, p. 26) stated that the project could put the State of New Jersey in the water resource construction business ahead of all other states. Although we are the friendliest of rivals with our Delaware River Basin neighbor, I would like to advise that the Commonwealth of Pennsylvania has been in the water conservation construction field for many years.

Ever since 1905, the Water and Power Resources Board (formerly the Pennsylvania Water Supply Commission), through legislative acts, has been vested with certain powers and authorities for the conservation, control and equitable use of the waters within the Commonwealth. Pennsylvania has not entered the phase of supplying nor transportation of water for public consumption. It has, however, taken an early lead in impounding stream flows for flood relief, recreational purposes and low flow augmentation.

A few of such major water resources conservation projects may be cited as follows:

- A legislative act, approved in 1913, directed the Water Supply Commission to erect a dam at the outlet of Pymatuning Swamp for the purpose of establishing a reservoir to conserve the water thereof and to regulate the flow of water in the Shenango and Beaver Rivers. The Pymatuning Reservoir, impounding 64 bg, was subsequently constructed near Meadeville. During dry seasons, water for domestic and industrial use is released; during wet seasons, the reservoir absorbs flood waters.
- In 1948, the Little Pine Creek Reservoir near Williamsport was built for flood control and recreation purposes. It holds 8 bg.
- The George B. Stevenson Dam and Reservoir on the First Fork Sinnemahoning Creek was completed in 1956. It serves primarily for flood control and secondarily for recreation purposes. Of 25 bg capacity, it is operated by the Department of Forests and Waters in coordination with the Federal-State Flood Forecasting Service.
- In order to clean up the Schuylkill River, in 1945 Pennsylvania passed an act providing for the removal and disposal of the accumulated silt deposits in the channel and on the banks of the Schuylkill River from its headwaters to Norristown. Work was started in 1947 and completed in 1951 at a cost of $35 million (ENR, Mar. 10, 1949, p. 21). The Schuylkill River Desilting Project has been acclaimed to be the world's most extensive river rehabilitation project ever undertaken: water quality has been greatly improved, aquatic life now abounds, recurring flood damages have been abated.
- The department has been engaged in a $12 million flood control program as a result of Hurricane Diane of August, 1955, and subsequent floods.

In conclusion, it may be justly stated that the Commonwealth of Pennsylvania through its several departmental agencies and by support of its legislative branches for the last half century has been an outstanding leader in water resources conservation. The formation and adoption of an equitable water management program is now being considered advisable.

MAURICE K. GODDARD
Secretary
Pennsylvania Department of Forests & Waters
Harrisburg

(Editor's Note: When it credited New Jersey with a could-be first, ENR was thinking too narrowly in terms of water supply. Pennsylvania's early and exemplary water projects, primarily for flood control, are well known to ENR and many of its readers and do, of course, place that state way ahead in the water resource construction business).

Check Column Stability

SIR—I read with interest the experience of J. F. Mumper with a machinery deck structure, which was reported in ENR June 20 p. 8. His case points up two oft-forgotten morals in structural design: (1) every structure should be checked for lateral loading, and (2) stability criteria for compression members in frameworks differ from those of simple columns.

Implicit in the design of a pin-ended column is the idea of lateral support of the top and bottom, so that the structure is stable. In the design of the legs of a framework, however, in which there are no walls, bracing, or other shear element to support the top of the leg laterally, the stability criterion is

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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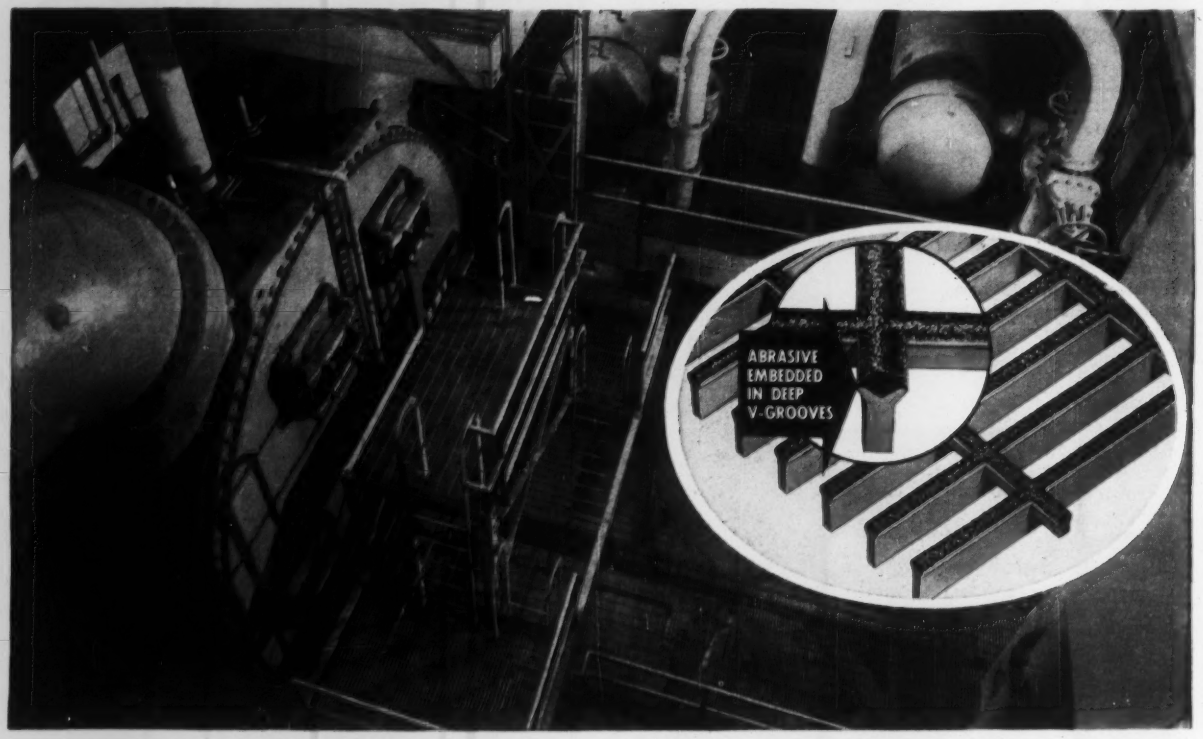

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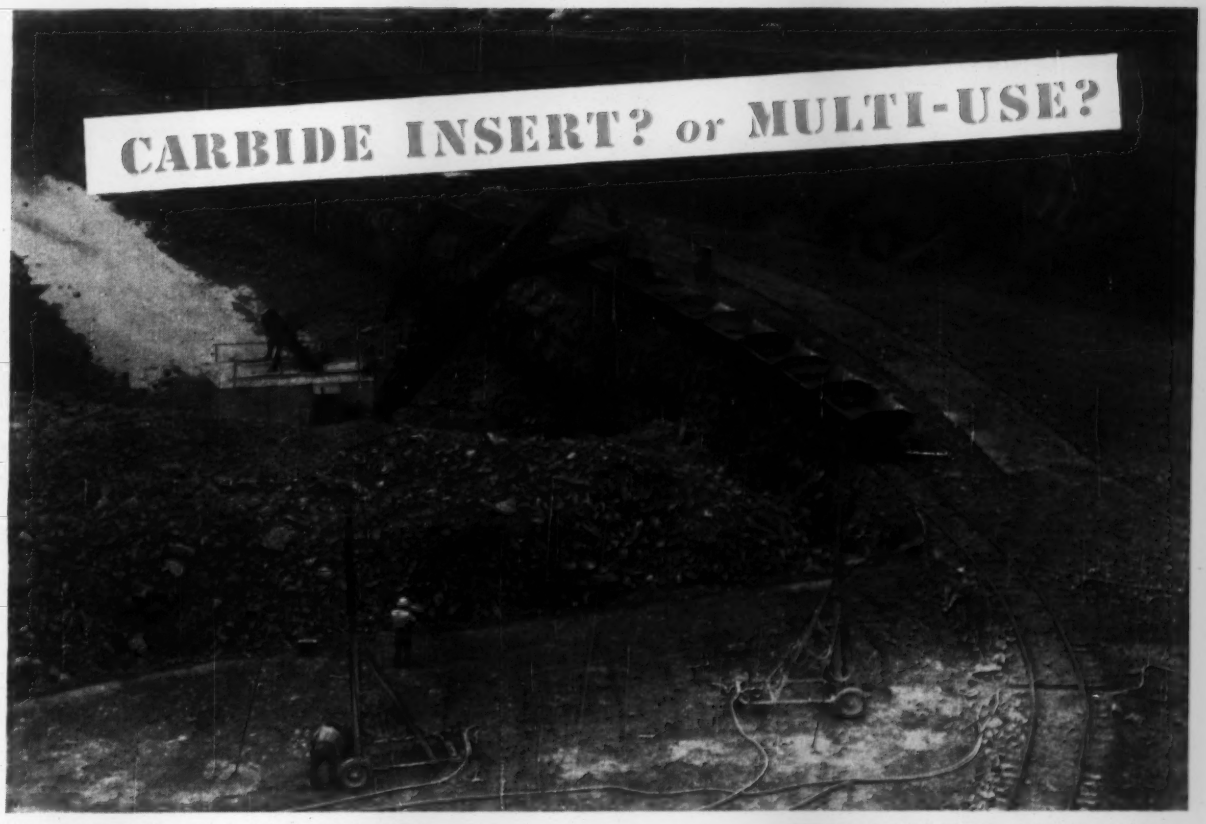

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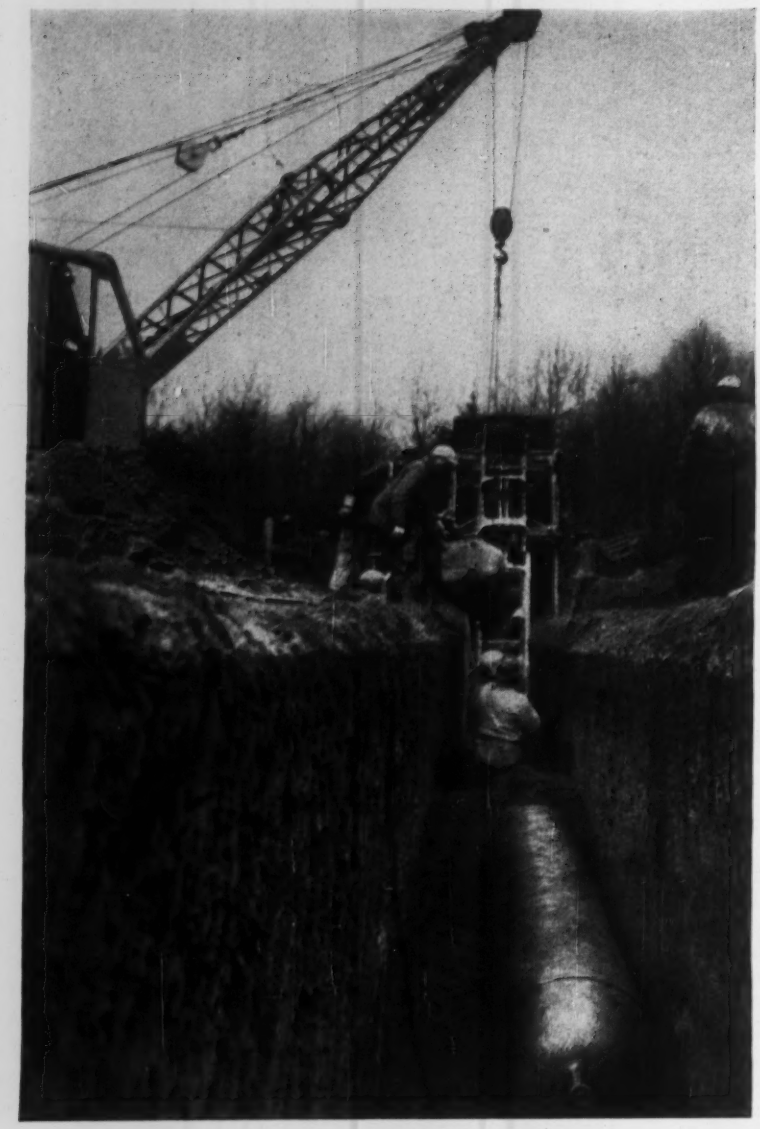

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Lower over-all costs, flexibility of design, and faster work progress are cited by associated architects, Canizaro and Overstreet, as major factors in their choice of reinforced concrete for the new First National Bank Building in Jackson, Mississippi.

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First National Bank Building*
Jackson, Mississippi

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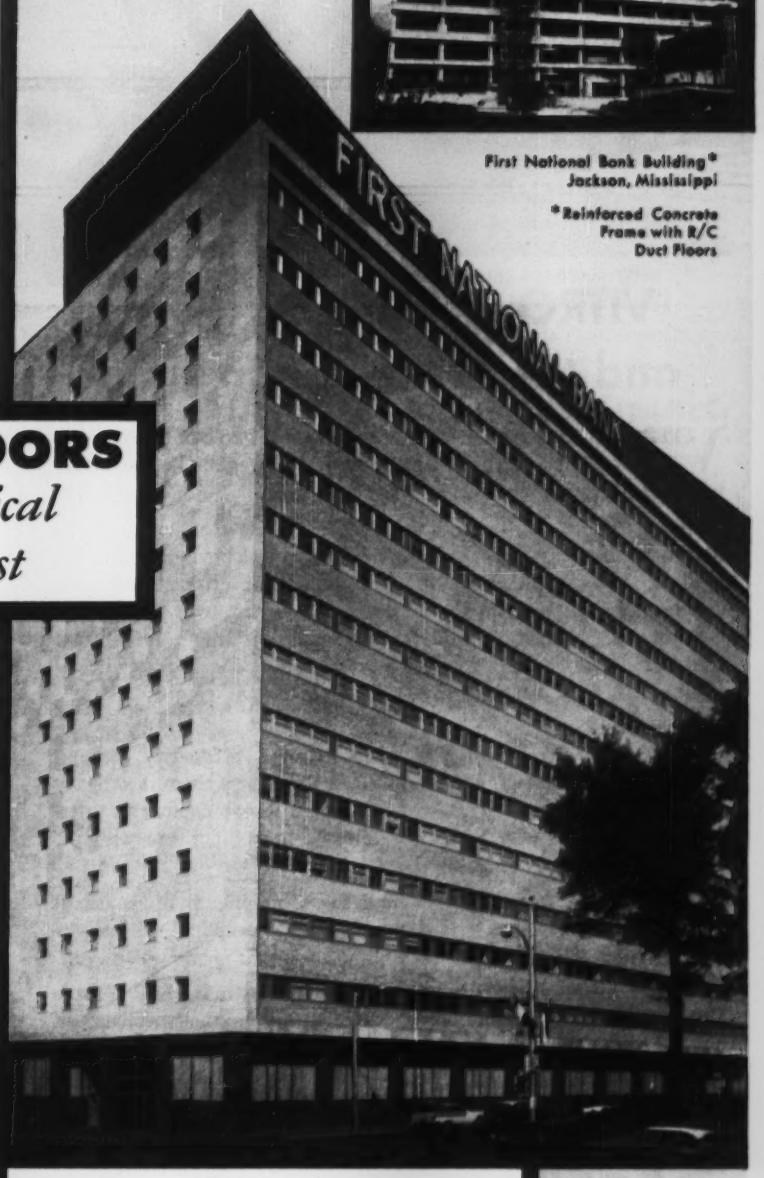

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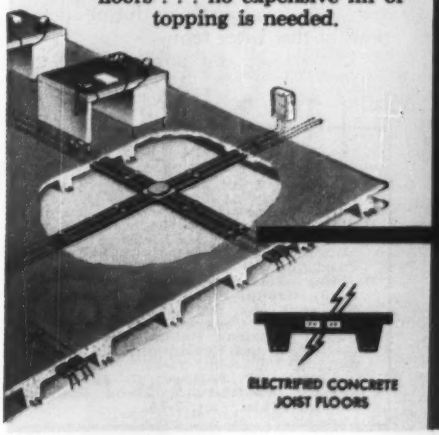

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altogether different from that for pin-ended columns. In a frame, the compression member is subject to both direct load and bending due to continuity between beam and column, as well as moments due to translation of the top of the leg. The leg is properly designed only as a beam-column, the principles for which are given in Bleich's "Buckling Strength of Metal Structures" (McGraw-Hill Book Co., New York, N. Y.) and elsewhere.

Sometimes simplifying assumptions are possible, so that the complex analysis of the beam-column theory may be bypassed. Such a case occurs when the bottom of the leg may be considered to be pin-ended and the top fixed due to a very stiff girder framing into it. In this case, the moment in the column at the top is the lateral reaction at the bottom times the height of the leg, and the effective column length is twice the height of the column, because the top of the leg must be considered to be displaced laterally from the vertical column axis. The application of the AISC criterion for direct stress and bending ($f_a/F_a + f_b/F_b \leq 1$) then yields a satisfactory design.

MORRIS DOBERNE
Consulting Engineer
Los Angeles, Calif.

Misprint in Equation

SIR—The June 13 issue of ENR published my prior letter to you on "the ASA wind loading standard." There appears to be a misprint in line 6 of the second paragraph.

The value shown as $p = 0.0036V^2$ should have been $p = 0.0026V^2$.

The comments of Mr. Thompson are enlightening and appreciated. I am heartily in agreement with the use of the fastest single-mile wind speed for determining wind loads rather than the five-minute average wind speed, and suggest that it be adopted as the "maximum wind velocity" in future definitions of this latter term.

GEORGE N. HYLAND
Wilmington, Del.

CALENDAR

World Conference on Prestressed Concrete, Fairmont Hotel, San Francisco, Calif., July 29-August 2.

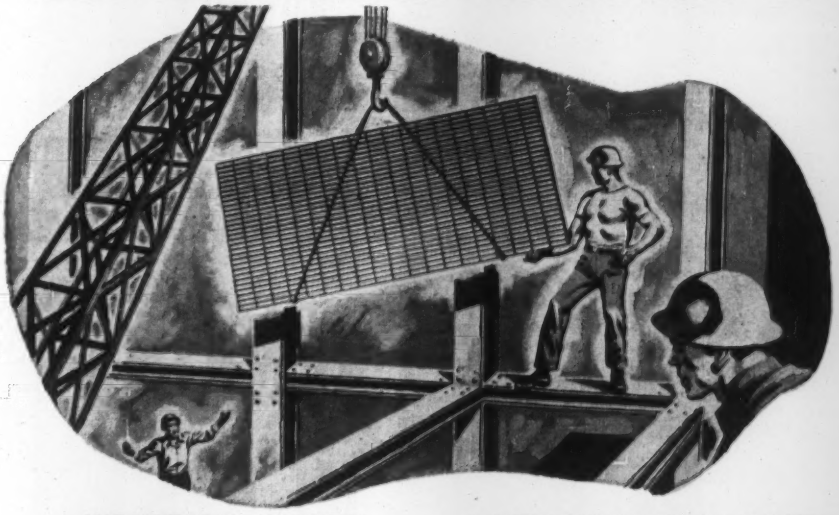
Hydraulics Div., American Society of Civil Engineers, Kresge Auditorium, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 26-28.

Building Research Institute's Plastics Study Group, Washington University, St. Louis, Mo., Sept. 17-18.

Public Works Congress and Equipment Show, American Public Works Association, Grand Exhibition Hall, Philadelphia, Pa., Sept. 22-25.

Federation of Sewage & Industrial Wastes Associations, Hotel Statler, Boston, Mass., Oct. 7-10.

BUILDING?



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ENGINEERING NEWS-RECORD

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CONTENTS

NATIONAL AFFAIRS

Cement Shortage Grows Critical 21
Billboards May Be Limited in Maryland 22
Congress Keeps Waving the Ax 23
Bid on 13 Niagara Turbines 23
States Work on Road Program Problems 25
Plans to Be Made for World Construction Year .. 25
Extra Road Mileage Requests Pile Up 26
Los Angeles Asks to Build Bridge Canyon Dam .. 27
Gas Line Construction Climbs in West 28
First Mobile "Weigh Station" for California 28

FEATURES

Ocean Outfall Laid 7 Miles in 7 Days 33
Concrete Replaces Wood Power Poles 41
Room to Grow Brightens Plant's Future 44
Wood Lamellar Dome Roofs Reservoir 49
Bridge Over a Bridge Under a Bridge 50

NEW PRODUCTS

Wall Panels Faced With Translucent Plastic 57
Air Pump Line for Low Lift Applications 57
Triangles Solved Directly With New Device 57
Trencher Attachment Keeps Line of Sight True ... 58

INTERNATIONAL

Replacing a Mill Roof Without Shutdowns 61
Novel Sluice Gates Are Retractable 62

RESEARCH

Researchers Examine Cracking in Concrete 71
Model to Give Bay Problem Answers 71

MEN AND JOBS

Georgia Road Secretary Takes AGC Post 93

BUSINESS AND FINANCE

The Longer Look 128
Steel Expansion to Cost $35 Million 128
Urban Renewal Advances 129
States Work to Get Industry 130
Equipment Orders Lag 130
Construction Markets: Boston 132
Merged Firms to Specialize in Marina Design ... 132

LABOR

Big Project Is Built Fast—And Peacefully 134
Wage Strikes Ease Up 139

Reader Comment 8
Calendar 10
Washington Observer. 19
Books 66
Legal 79
Obituaries 96
Unit Prices 98
Materials Prices 102
Construction Reports ..105
Scoreboard 124
Editorials 152

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 50¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

NOT SMALL CHANGE—The volume of change orders connected with contracts for school construction has become so large that New York City officials have ok'd appointment of two consulting engineering firms to expedite matters. Total cost will fall just short of $100,000 over a six month period. This will be the second time within less than two years that outside consultants have been called in to help process change orders—the huge backlog of the orders and the delay incident to processing them has caused many contractors to hold back on bidding on school work. As of June 27, for instance, there was a backlog of about 1,000 change orders, and 57 bulletins consisting of 4,364 items under substantially completed contracts. (The bulletins are a list of change orders issued after receipt of bids and prior to start of construction.) Meanwhile the Board of Education started an independent study to see what could be done to cut down the changes. One suggestion that has been made: Provide more time for planning, and time for review of plans before bids are sought.

RECORD PRESTRESSED BRIDGE—New York State is planning a highway bridge that will set a new U. S. span record for prestressed concrete girders. It will fall short of the longest European bridges of this type, however. With an overall length of 470 ft, the crossing will comprise a main span 320 ft long and two side spans of 75 ft. Summers & Munninger, Albany consulting engineers, now are making a study and design of the project for the Department of Public Works. If results are favorable, construction will begin next year. The 6-lane structure will cross Oneida Lake outlet, which is located only a few miles north of Syracuse.

TRACERS TRACK SAND SHIFT—Australian scientists have used radioactive trace elements to trace sand movements to determine how they might affect a new harbor.

The problem arose at Portland, in the State of Victoria, where a $12 million deepwater harbor is proposed. Officials wanted to know if sand movement would impair the proposed new job. The commonwealth Scientific and Industrial Research Organization added radioactive tracers to more than 20 tons of sand dumped at selected spots, then samples were taken at intervals. Tracers could be detected in samples containing as little as one part in 30 million.

Conclusions—after two years of sampling: construction of breakwaters for the new harbor will change the pattern of sand movement, but dredging required will be small.

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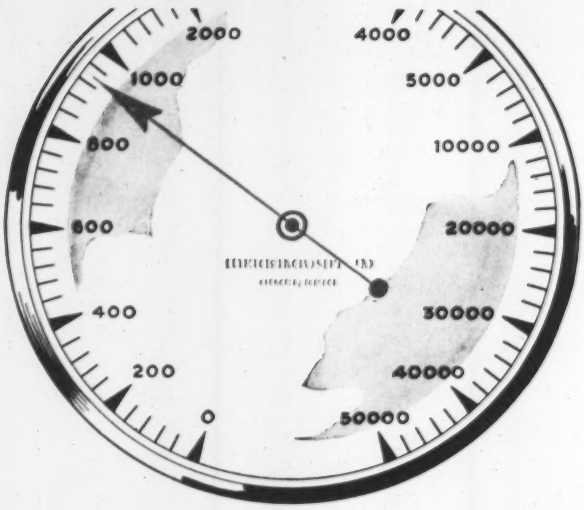

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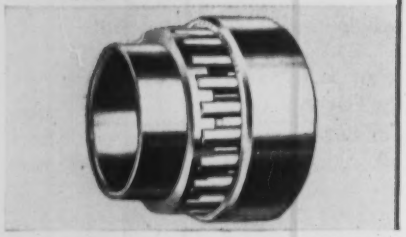

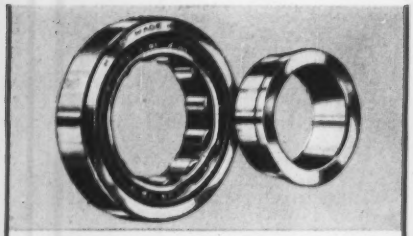

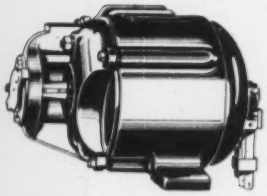

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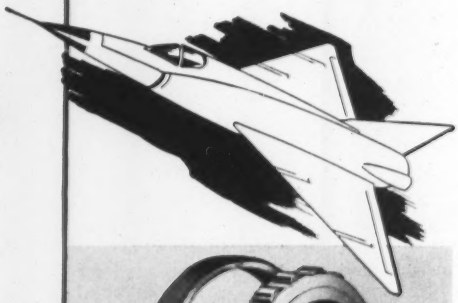

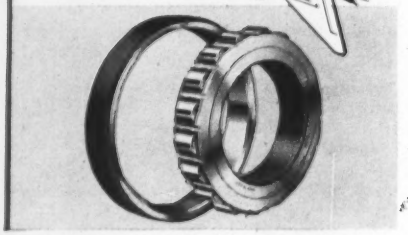

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WASHINGTON OBSERVER

- **Hoffa verdict affects building trades**
- **Federal grant inquiry in offing**
- **Free hand for TVA financing**

● **Big Trouble between the building trades and the industrial unions of the AFL-CIO is boiling beneath the surface of union politics.** It grows out of the intensification of rivalry between top union big-wigs following the acquittal of teamster vice-president Jimmy Hoffa—who was cleared of charges of bribing an employee of Senator McClellan's committee that's investigating union corruption.

With Hoffa cleared, he becomes the biggest man in the teamsters and can either become president of the union, or name the next president during the union's convention this fall. Sen. McClellan's committee is still trying to tag Hoffa, and the teamster boss has a wire-tapping trial to face—but as of now, Hoffa's future has never seemed more promising.

Hoffa almost certainly will have a bigger voice in the building trades as leader of the bloc inside the federation that's fighting any expansion of the power of Reuther and the industrial unions that came from the CIO.

The building trades are having an important meeting August 5 in Atlantic City at which Hoffa's new stature and power may be demonstrated.

Official reason for the meeting is to revise the department's constitution. But one major item of business is approval of a pension for Building Trades President Dick Gray, and probably the picking of a successor. The new man wouldn't take over until the union convention this winter.

—

● **A new fight over federal grants to states for construction may be in the offing.** Leaders of the House anti-spending bloc—including such conservatives as Howard Smith of Virginia and Clarence Brown of Ohio—have managed to bring to a vote in the House the creation of a new special committee to be created to investigate federal spending—including such programs as schools, hospitals, housing, stream pollution and the like.

There's still doubt about whether the House will approve. Both sides think they have the votes. Rep. Landrum has pushed the idea most, and would be chairman of the committee if it is approved. He'd take much the same line on federal aid to school construction, say, as chairman Barden of the Education and Labor Committee, of which Landrum is a member.

—

● **A self-financing plan with virtually no restrictions was approved by the House Public Works Committee last week for the Tennessee Valley Authority.** The measure, which generally follows the wishes of TVA area members of Congress, would authorize the agency to issue bonds for public sale at rates and times to be decided by the board of directors. The measure makes no mention of limitations—such as spelled out in the Senate version—on the amount of a proposed bond issue or the service area of the agency. The bonds would be secured by TVA's power revenues and could be used for any type of construction.

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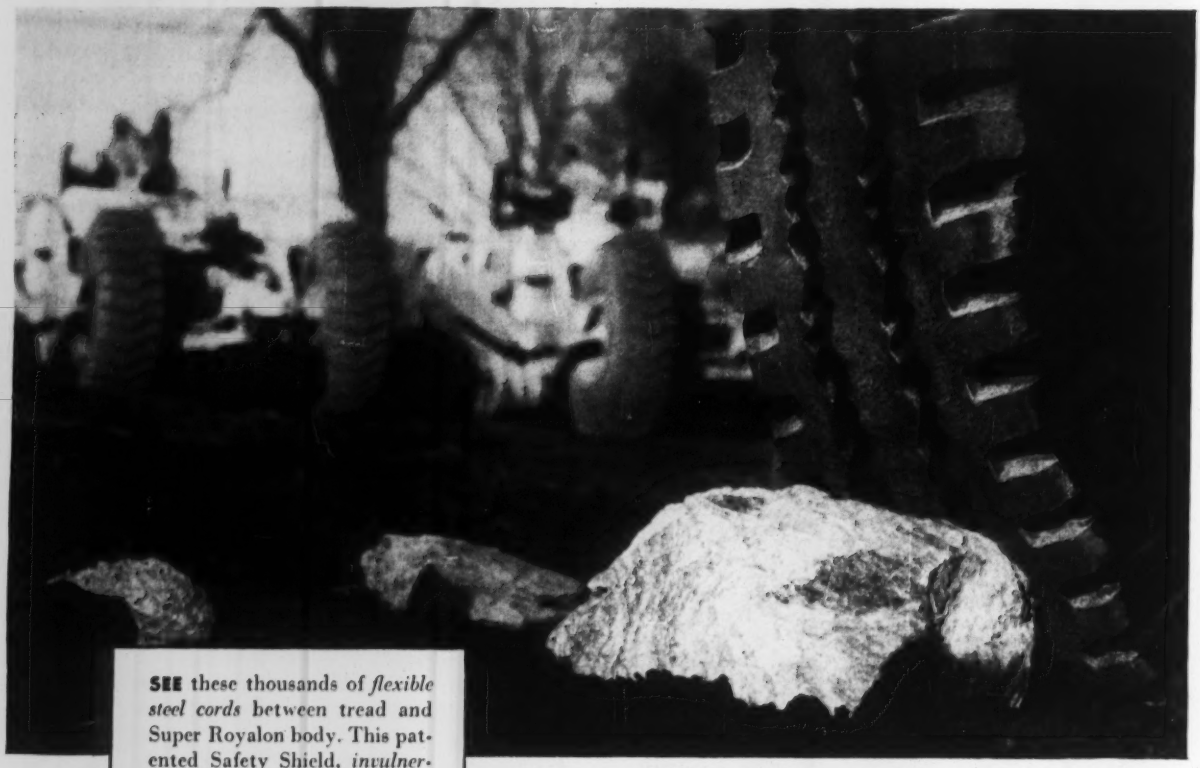

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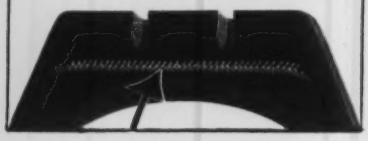

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As the strike goes on . . .

- **Eastern cities still hardest hit**
- **"Subcontractor" clause blocks pact**
- **Price increase seems certain**

Cement Shortage Grows Critical

The strike-caused shortage of portland cement approached, and in some cases reached, the critical stage this week in such major cities as New York, Boston, Baltimore, Atlanta, Philadelphia, Dallas and Birmingham.

Shutdowns of major projects were widespread in New York, Philadelphia and Boston, which were the three hardest hit.

Although roughly one-third of the nation's 170 cement plants remained strike-bound, some areas were not affected. Supplies continued at their normal rate in such major cities as St. Louis, Los Angeles, San Francisco, Seattle, Denver, Pittsburgh, Minneapolis, Kansas City, Mo., and New Orleans.

Some construction activity may be curtailed in Chicago, Detroit and Cincinnati within the next week to 10 days if there is any extensive shipment of cement from these areas to others that have felt the full impact of the strike.

Key to this is the question of how long the strike will last. And, early this week, prospects of a quick settlement seemed remote.

Some producers have settled. But, with the exception of Marquette and Ideal, most of the nation's major producers have not signed new contracts with the united cement, lime and gypsum workers union. They are adamantly opposed to certain union goals, especially one provision they feel would seriously usurp management's prerogative to determine who will do certain work, such as repair and modernization.

Verbatim copies of the disputed clause were not available from either the union or the companies and paraphrased interpretations of the clause are varied.

Some sources say the union is seeking to protect for its members the work customarily done by members of the union in the bargaining units. This includes normal repair and maintenance but does not include construction of new plants, new buildings, expansion of existing facilities or major repairs.

But the union complains of companies contracting for the scrapping of old quarries, packaging of cement and similar work that is normally done by members of the union.

However, a high source in one company reported, that the clause would remove from management's hands one of its basic functions—deciding what job or jobs can more efficiently or economically be contracted to outside sources.

A union source explained that when equipment and manpower are available, the company's own employees would handle the work. As examples, the union points to such operations as trucking and drilling.

If trucks and men are available, the union says that its men should be used to haul the limestone to the cement plant. Drilling for the placement of dynamite charges also should be done by the union's members, the same source said.

In broader terms, the union said it wants the sheetmetal work, the machine shop work, the maintenance and janitor work as "we are a sort of industrial union, and our charter gives us the right to do such work."

It is such work that companies say should be done by those who can do it best. The president of one company gave two examples of jobs for which it now contracts that could not be done under the proposed clause.

"We may need a motor rewound and occasionally we contract such a job. We have electricians, but because of other pressing work in the plant it may not be possible to take one off a job to rewind a motor. It therefore could require days to get the job done. So, to expedite the work, we would contract the job and get it done in a couple of days. With the new clause, we feel the company could no longer do this, therefore our legitimate management decision is denied us."

As a second example, the same officer offered that of stone stripping.

"This is a job that we normally contract out to others as the equipment required is expensive to acquire and expensive to maintain in relation to the time that we make use of such machines. It is the opinion of our counsel that the new clause would prohibit us from contracting out that job. So we have no recourse but to stand firm in our decision not to accept the language in the clause as it is presented to us."

• **Union silent**—Through all the five weeks of discussion, the cement union was comparatively silent when it came to making statements. ENR's attempts to reach Toney Gallo, secretary-treasurer of the union, were unsuccessful because of meetings with other union officials, the Federal Mediation and Conciliation Service in Washington, and the Labor Department.

But early this week other sources reported that the union was ready "to interpret and clarify" the clause.

Through all the storm and controversy Marquette Cement Mfg. Co., the first major company to sign with the union, broke out with the following statement:

"The so-called new subcontracting clause in the agreement between Marquette and the union at its plant in Oglesby, Ill., is being grossly misrepresented. Marquette has not given up any

. . . Cement shortage grows critical

of its traditional management prerogatives and safeguards.

"If anything, the new clause is less restrictive on the company than the old clause. Some of the local unions at Marquette's other plants actually prefer the old clause. At several other Marquette plants, the question of revision of the old clause was withdrawn as a bargaining issue some time ago.

"Consequently, the new clause will appear in only two or three of the new Marquette labor agreements."

• **Clauses undisclosed**—A spokesman for Marquette said, however, that he could not quote either the old clause or the change in the clause reportedly causing the larger dispute.

The "subcontractors' clause," although the top issue, was not the only one, however. Retroactivity was still an unhappy consideration of management.

Several major cement manufacturing firms placed the issue of the union's retroactivity demand as the second stumbling block to an agreement.

But a spokesman for Lone Star Cement Corp. said, "No single item in the union package is considered the stumbling block. Lone Star hasn't conceded yet on any part of the package. We are determined not to accept in toto the Marquette agreement because we do not want to establish a precedent for industry wide bargaining."

The ENR spot check of concerns showed that other firms were also placing retroactivity as the second problem. But the companies did not wax as eloquently against this economic fact as against the subcontractors' clause.

However, it was apparent that retroactivity to May 1 was not going to be accepted gracefully. It represented another phase of the "pattern" and industry wide bargaining that the cement industry is determined to resist.

And the cement union is just as determined that retroactivity will be a contract term.

• **Both sides agree**—There is agreement on both sides on one thing—that retroactivity, if granted, will provide the local unions with a powerful bargaining weapon in the future.

As both sides are equally determined not to surrender on these two major points, there is a good possibility that the strike may continue for some time.

When agreement is reached, it probably will result in quick announcements of price increases for cement.

One firm, Ideal Cement of Denver, this week announced that a boost in price would occur at the start of the fourth quarter, Oct. 1. Amount of the increase was not disclosed.

Medusa Portland Cement Co. of Cleveland, said any agreement reached probably would result in increased prices.

• **Date in question**—The source said, however, "I don't like to talk about increased prices in the middle of the building season. But prices will have to go up in response to increased production costs which have been on the rise for some time."

He said that the amount of increase, if it should come, could not be estimated now, and added that any possible price boost would "most probably occur Jan. 1."

A spokesman for Lehigh Portland Cement Co., of Allentown, Pa. said he "is not happy about the thoughts of increasing prices in the fourth quarter or any time but if such should occur, it will probably be around Jan. 1."

At Lone Star, a company official said, "We have made no decision as yet on prices."

• **Earlier comments**—Last week, Marquette would not comment on immediate price increase possibilities but said that prices are "very apt" to change in the fourth quarter. No amount was given.

But distributors in major cities of the country guessed that price boosts probably would amount to 15 cents a barrel (ENR July 18, p. 138).

As the cement strike dragged on with only dim hopes of a quick settlement, contractors in major cities watched their jobs come to a halt or start to fall behind schedule.

The only consolation, if small, was the knowledge that when a settlement is reached, they will not have to wait long for cement supplies.

Strike-bound companies across the nation reported there will be little time lost in pumping cement into the distribution lines.

Cement company silos are filled or near filled. Hopper cars will be quickly run into yard sidings, filled and started to their destinations.

The only possible bottleneck that could develop, and then on a spotty basis, would be a car shortage. The demand for cars will be great and the concerted rush for them could result in a lack of cars in isolated instances.

• **Areas hit**—Connecticut, New Jersey, New York and Pennsylvania have been hit hard by the strike.

The $445 million Connecticut Turnpike is reportedly falling behind schedule, but the state has not given up hopes of opening the facility by January 1.

In New York City, building industry and union spokesmen said that about 40% of the area's construction work is delayed. On Long Island alone, 30,000 men have been laid off while nearly 3,000 workers in Albany are idle.

The New York State Thruway Authority said four projects having a total value of $180 million are either halted or slowed.

Canadian cement is being tested for use on some sections of the Connecticut Turnpike and New York City's Building Department will allow Canadian cement to be used if it meets contract specifications.

No Sign Language

Billboards may be limited by voluntary agreements

Through the voluntary cooperation of a group of advertising sign companies, the Maryland State Roads Commission thinks it stands a good chance of keeping some of its new expressways free of billboards.

The state legislature has consistently defeated bills designed to keep such signs off the new highway system, although at the last session billboards were banned from the proposed Northeast Expressway.

The first section of billboard-free highway, selected by Roads Commission representatives and the advertisers, is a part of the new Blue Star Memorial Highway on the Eastern Shore from Chesapeake Bay Bridge to Delaware.

Bernard Wilson, of Bladensburg, speaking for the General Outdoor Advertising Co. and other sign companies, said, "We consider the newly opened part of the Blue Star Memorial Highway as a scenic area. There are now no advertising signs on this section, about 15 miles. As long as there is no commercialization of the area our group will not put advertising signs on this new stretch of Maryland highway."

Robert O. Bonnell, chairman of the Roads Commission, wrote to Mr. Wilson and others expressing appreciation of their cooperative attitude in keeping billboards off this section.

Efforts are now under way to work out similar compacts to protect other controlled and limited-access highways. These include the Harrisburg Expressway, the new John Hanson Highway from Annapolis to Washington, D. C., sections of U. S. 40 near Frederick, and the Washington National Pike, which is now open as a dual-lane limited-access expressway from Frederick south to Rockville. This latter highway is now free of billboards and through the cooperation of the big advertising sign companies it is expected to stay that way.

Congress Keeps Waving the Ax

Administration desires are furthered—and thwarted —as bills make their way to House floor

The Administration's policy of "no new starts on reclamation and public works", with the economy atmosphere it has engendered, has proved to be a free-swinging cutting tool. It is being used to help chop out bills that the Administration is against, such as the one for Hells Canyon Dam. And it's being used to help cut ground out from under a bill the White House did want passed, the school construction program. Also, projects such as Trinity River—which passed without much opposition—are having difficulty getting funds to continue work.

At this point, the project that has the best chance of Congressional approval is the Niagara Power development legislation (see below), but that will not involve any expenditure by Congress.

About the only other project that also appears to stand a good chance is the $32 million San Angelo municipal water project in central Texas.

• **School construction**—The controversial school construction program is up in the House for debate this week and appears almost sure to be voted down.

The $1.5 billion bill is a compromise between the Administration and Democratic approach and would call for paying out $300 million a year for five years to help local school districts build schools. Last year the House turned down a school construction bill primarily because of the fight over school integration.

This year that still remains an obstacle, while an additional one has been added by the "no new starts" policy. It is almost assured that the coalition of conservative Republicans and southern Democrats will swing into action to turn thumbs down on school aid.

• **Reclamation**—Two major reclamation bills that already have been approved by the Senate—Hells Canyon Dam and Fryingpan-Arkansas stream diversion—don't appear to have much of a chance of getting out of the House Interior Committee.

An interior subcommittee recently disapproved the Hells Canyon bill and a drive is on to kill it with finality.

Also, the committee is winding up hearings on the $154 million Fryingpan-Arkansas bill, but the project isn't likely to be approved. It has been reported out twice in the past, but on both occasions the House voted down the bill.

Public-vs-private power is involved in the bill before the House Interior Committee that would authorize the Secretary of the Interior to enter into a contract with the Pacific Gas and Electric Co. to build and operate the power facilities at the $230 million Trinity River Dam project. Chairman Engle, who takes the position that the federal government should build the power facilities as well as the dam, plans to hold hearings this session after Hells Canyon legislation is disposed of.

• **Rivers and harbors**—The House Public Works Committee last week reported an omnibus rivers and harbor and flood-control bill calling for $1,456,461,800. This is almost $100 million less than the figure approved earlier by the Senate and compares with the $1.6 billion bill vetoed by President Eisenhower last year. That bill was vetoed on the grounds that the Budget Bureau had not cleared some 43% of the projects involved. The House committee-approved bill contains only 13.9% unapproved projects, but the version approved by the Senate contained 25% uncleared projects so the final bill is sure to be somewhere between the House and Senate percentage.

One of the major deletions from the bill by the House committee was $75 million approved by the Senate, but not by the Budget Bureau, for work on the Mississippi River channel. Another project killed by the House committee was the Bruces Eddy Dam, to have been built by the Army Engineers on the Clearwater River in Idaho. The Senate had put in $25 million to get the dam started, but the Budget Bureau objected and the House committee struck it from the bill.

• **Public works**—Appropriations bills for public works are moving forward, but they, too, are feeling the economy pinch. The House trimmed back appropriations for public works from $876 million to $814 million. However, the bill reported by the Senate last week had been increased to $884 million—an increase of $76 million over budget estimates, which is not likely to be cut.

Finally, the supplemental appropriation bill, which will be the last money bill to be acted on by the Congress before it quits, will include approximately $2.2 billion for military construction.

Saved time is goal in . . .

Bid on 13 Niagara Turbines

For a second time, Robert Moses, chairman of the Power Authority of the State of New York, has put the cart before the horse to save time on the planned $600 million Niagara power development. And it appears that his high-flying actions will pay off—in 18 months time saved, according to Mr. Moses' previous estimates.

The latest cart was the taking of bids last week on 13 huge turbines, "contingent on clearance in Washington of the Power Authority's right to proceed" with state development of the 1.8 million kw project. Previously, confident of Congressional authorization, PASNY went ahead with borings, topographical surveys and other preliminary studies under an advance of funds by New York State.

Now, it seems almost assured that Congress will give the state the go-ahead signal. Last Wednesday, a bill directing the Federal Power Commission to license PASNY to construct the Niagara development, was reported out of the House Public Works Committee. House passage is likely soon. However, Senate action on a similar bill before it, although expected to be favorable, is being delayed by the present debate on civil rights.

• **Record turbine contract**—Bids for the turbines were called in June, with the idea that months of time would be saved in design, bid advertising and engineering checks once the authorization comes through. Two bids were submitted, one for $20.4 million and the other for $20.6 million. If awarded at either figure, the contract would probably be a new record for a turbine contract. An ENR check turned up a $20 million award for The Dalles Dam's 14 turbines as the record up to now.

Turbine specifications for Niagara call for 13 Francis-type turbines, each rated at 200,000 hp under a 315 ft head. Scroll cases are to be made of T-1, the new high-strength alloy steel (ENR Nov. 15, 1956, p. 33).

Low bid came from a joint venture of the Baldwin-Lima Hamilton Corp. and the Newport News Shipping & Drydock Co. The other bid was submitted by Allis-Chalmers Mfg. Co. and S. Morgan Smith Co.

Uhl, Hall & Rich of Boston, consulting engineers for the Power Authority, are making an engineering analysis of the bids so that an award can be made as soon as possible after Congressional approval has been received.

Unusual Cofferdams Come Out Now That Job's Done

Weighted cribs that held steel sheet piling against swirling waters above Niagara Falls have accomplished their purpose and are coming out.

This hefty cofferdam, built in six stages, enclosed an area in which a 1,550 ft long control works was constructed. It extended from the Canadian shore less than a mile above the brink of the Horseshoe Falls in water flowing 12 ft per second (ENR April 25, 1955, p. 30).

Each crib was a prefabricated structure, 10 ft long, 30 ft wide and 14 ft high. Each interlocked with the next and all were held in place by H-piles driven through slots. Then each crib was loaded with 36 six-ton precast concrete blocks.

According to F. J. Dobson, who is project manager for the Hydro-Electric Power Commission of Ontario, the cofferdam was quite successful. Cribs had three uses each and are now being salvaged. No use (or buyer) has as yet been found for the 6 ton concrete blocks.

$25 Million Reconstruction Of Tulsa Airport Begun

A $25 million reconstruction program for Tulsa's Municipal Airport, has been started with a $6.5 million new taxiway and terminal project.

Some $15 million are being spent for an American Airlines jet maintenance depot and at least $3.5 million for the expansion of the Air National Guard facilities.

It was reported that the jet maintenance depot must be ready by January 1, 1959 when American plans to put its new transports into operation. In addition to engineering work on the taxiway phase of the terminal project, work will get underway within 30 days on the resurfacing of the north-west-southeast runway at a cost of $148,000. About $500,000 of federal funds will be available for the taxiway and runway project. The Civil Aeronautics Administration will reimburse the city for 50% of the cost of land acquisition for a clear zone the city bought to protect the north-south runway. The same reimbursement will apply for some land purchased for the terminal building.

Half of the terminal cost will be repaid by the federal government and $1 million in federal funds is now available. Requests for additional money have been submitted.

The other half will have to be paid from a local bond issue.

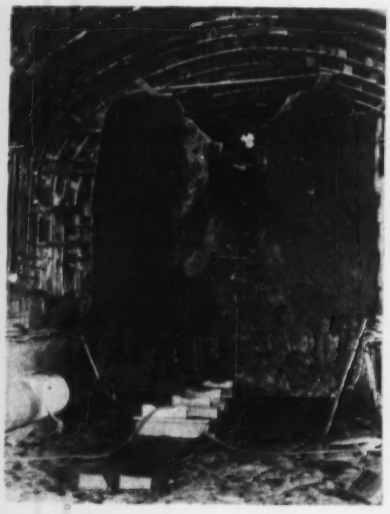
Troubled Koolau Tunnel Now Has All It's Rings

Honolulu's trouble-plagued Koolau Mountain tunnel has passed a milestone—completion of steel reinforcing rings for the full 2,775 ft length of the first of the planned twin bores.

Work on the $5.5 million project is proceeding on a 24-hour-a-day basis and engineers say that completion of the first tunnel by early next year is indicated. Bids will be asked on the second tube this month.

Reinforcing work on the first tube involved placement of 10 in. thick steel I-beam rib segments, with the area where three successive cave-ins killed several men (ENR July 29, 1954, p. 25) being done last. Three separate drifts were cut through the soft earth in the cave-in area to provide access.

E. E. Black, Ltd., who started the project, is completing the work. A controversy over whether Black should continue with the project, in view of the loss of five workers' lives, was one cause of delay on the project, which was started almost four years ago.



New Tunnel Intake Will Give Plant More Head

This new tunnel entrance just broken through, will ultimately serve as the intake for Gorge power plant on the Skagit River in Washington. The new entrance, which connects with a two mile water tunnel, will provide 88 ft of additional head and increase power production by about 45,000 kw when Gorge High Dam, now under preliminary construction, is completed. The Gorge plant is out of operation while tunnel and intake work is done. Owner is Seattle City Light. Contractor is Merritt-Chapman & Scott.

Southwest Utilities Plan a Prototype A-Power Plant

Thirteen electric companies, serving six southwestern states, have requested a charter for a non-profit corporation to build one or more atomic power plants.

The new corporation, Southwest Atomic Energy Associates, intends to build a prototype atomic power plant originally planned by Middle South Utilities, Inc.

The combine plans a four year, $5 million research and development program, according to information supplied in its charter request.

Laboratory work will be the first phase, lasting about two years. After that time, a decision will be made on location of plants with capacities ranging from 200,000 to 400,000 kw each.

Officials of the group hope the research program will show that plants of the size anticipated can produce electricity at costs competitive with conventional fuels.

The 13 electric utilities involved in the group serve 2.2 million customers in Arkansas, Kansas, Louisiana, Mississippi, Missouri and Oklahoma.

States Work Hard on Highway Program Problems

Legislatures still in session pay particular attention to two major issues—one legal, the other monetary

The few state legislatures still remaining in session are pushing hard on meeting problems posed by the national highway program, with particular attention to two issues—one legal, the other monetary.

The legal problem revolves around the questions of reimbursement for utilities forced to move their facilities to make way for the new highway programs. The monetary problems concerns raising new taxes and authorizing bond issues with which to meet the state's share of the highway cost.

Typical, perhaps, of the relocation problem is due to come to a court review shortly in New Mexico, where the State Highway Department has challenged the legality of a 1957 legislative act that requires the highway department to pay for the cost of moving utilities. Pending the outcome of a court suit challenging the act's validity, the highway department is letting contracts only after obtaining agreements from utilities, to abide, retroactively with whatever decision the court may make.

In Pennsylvania, meanwhile, Gov. George M. Leader vetoed House Bill 984, passed by both houses, which provides that utilities must be paid for the cost of relocating their facilities. The governor's announcement was strongly backed by the Pennsylvania Motor Federation, which charged that Pennsylvania will turn over to public utility interests some $200 million in such payments.

And in Utah, the State Attorney General has advised the State Road Commission to disregard a 1957 state law requiring payment to public utilities for relocation, until the matter is tested in court. The Attorney General's office held that the law is in possible conflict with the state constitution, which forbids the state to "lend its credit" to private concerns.

• **Financing Trends**—On the money front, five states took some action on proposed bond issues to finance their share of the highway program.

In Alabama, the legislature is considering a bill proposing a $20 million bond issue, to be financed out of revenues from a recent 1 cent increase in gasoline taxes. Maine's proposal for a referendum Sept. 9 on a $24 million highway bond issue has been given final passage in the legislature. In Minnesota, State Auditor Stafford King said that state highway officers will seek bids in July for purchase of $12 million in state trunk highway bonds. And in Vermont, a bill authorizing a $26 million highway bond issue was given final passage by the legislature.

In Kentucky, however—where validity of the $100 million highway bond issue approved by voters at last year's general election has been upheld in state courts—some doubt has been expressed as to whether the bonds can be sold in the current tight money market. The problem is that the state's highest court ruled that no single bond in the issue can be sold at more than 3% interest. Few if any bonds of comparable nature now are being sold that low.

• **Trouble in Arkansas**—Worst financial mixup appeared to be in Arkansas, where a special legislative session will probably be called to unscramble the State Highway Commission's troubles.

A month ago, the commission programmed $22 million worth of work—most of it on two interstate roads. But in mid-July, the roads body announced it was so broke that it would have to cancel some lettings, and tried to get contractors to agree to a retainage of 35% on payments due them. Contractors reacted explosively, demanded a special session to solve the problem. The state's governor agreed a special session is probably needed, but said he'd wait a month before calling it, to study the situation.

Shortage is blamed on a change in the department's fiscal year bookkeeping—the legislature this year changed the end of the fiscal year from Mar. 31 to June 30—and to a slump in anticipated gasoline tax collections.

To add to the confusion, the state's attorney general announced that the highway reserve fund has a $3 million surplus—almost the exact amount needed to get out of the present hole. But legislative approval must be given for tapping this fund.

Meanwhile, the state has agreed to pay contractors in full for work completed until Aug. 15, and 50 to 60% after that. Contractors who can finance themselves until next January will continue work—those who can't will be permitted to stop without penalty.

• **Revenues reduced?**—In other fiscal moves, two states took steps that may reduce their tax receipts from highway sources. California approved a measure that reduces from 3 to 1½% the state gross receipts transportation tax on trucks and passenger buses, with an estimated loss of between $6 million and $7 million a year in highway fund revenue. In North Carolina, W. H. Rogers, Jr., chief highway engineer, said that actions of the recent session of the legislature would reduce highway tax collections by $3 million during the next biennium. He estimates the total losses would result from a cut in franchise taxes paid by intercity bus companies; from refunding to counties and municipalities the 6 cent per gal gasoline tax paid on motor fuel used by local governments, and by raising from 5 cents to 6 cents per gal the refund to non-highway fuel users.

In other actions, Connecticut's Gov. Abraham Ribicoff has signed into law a bill extending the state's 6 cent gasoline tax rate until July 1, 1959 (the tax would have reverted to 4 cents a gal next year). Maine approved a bill to increase driver license and automobile and truck registration fees starting next year. Nebraska has passed a measure increasing the state's gasoline tax rate from 6 cents to 7 cents.

And in Frankfurt, Ky., the State Highway Department announced the arrival of its new $12,000 airplane, bought for use in aerial surveys for determining road locations.

Eye to the Future

Meeting scheduled to plan a World Construction Year

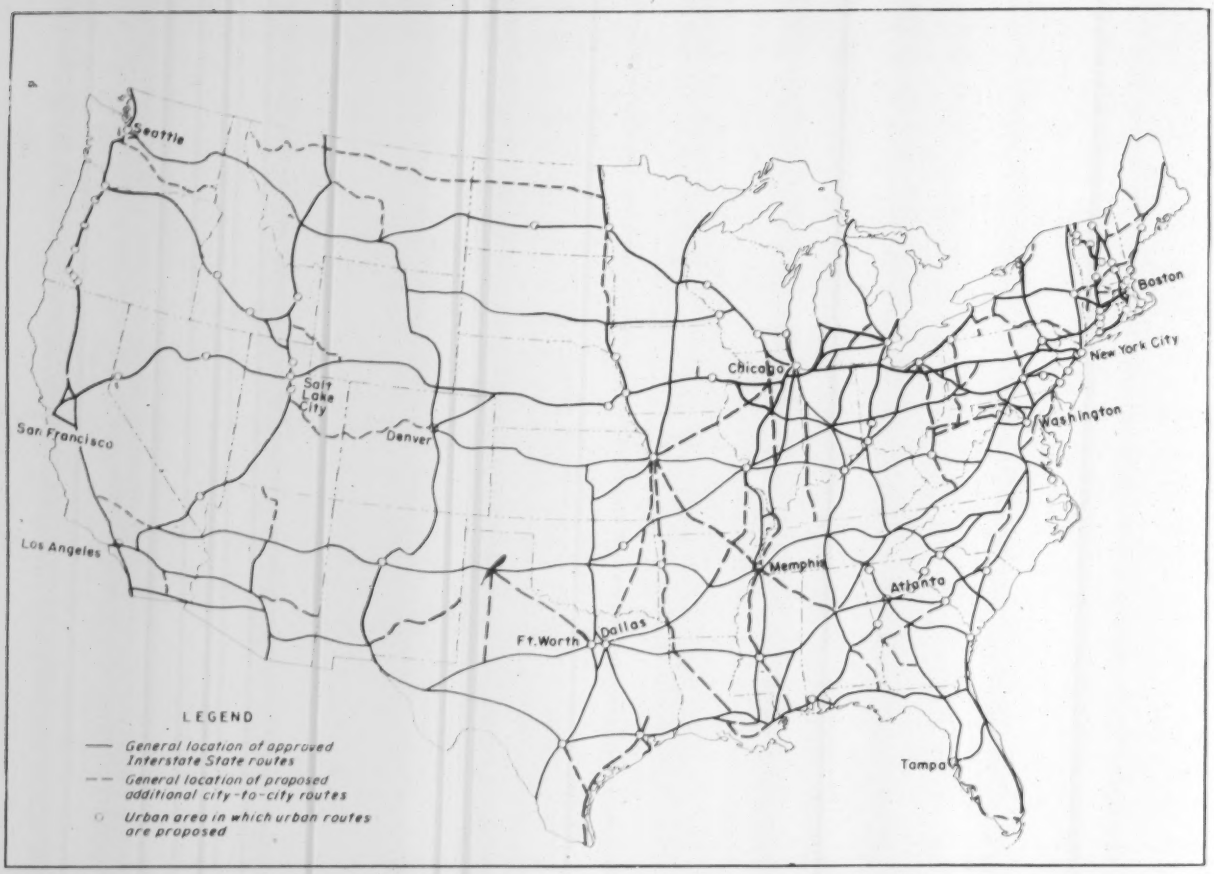
Long-range plans are getting under way for the program reported in ENR July 11, p. 19 designed to establish 1960 as a World Construction Year, to be followed by the convening of a World Construction Congress in 1961.

Northwestern University, acting through its Technological Institute, of which H. B. Gotaas is dean, is the primary sponsoring university for the initial plan of action. Co-sponsors are the American Society of Civil Engineers and the American Institute of Architects.

The present plan envisions holding the World Congress on Construction in Chicago, at which time most of the countries of the world would report on new projects developed and construction accomplishments during the World Construction Year.

According to Howard T. Fisher, Chicago architect and engineer, a number of exploratory meetings are planned.

A tentative proposed schedule of meetings calls for the first one to be held in this country on Dec. 10 of this year, for cooperating U. S. groups.



Extra Road Mileage Requests Pile Up

Although Congress has been reluctant to raise the mileage authorized for the interstate highway system this year, it has indicated strongly that more mileage should and will be added to the huge roadbuilding program.

The result is that the states are pouring requests into the Bureau of Public Roads for extra miles of interstate road—in the hope of getting extra 90-10 dollars.

To date, an unofficial tally for BPR shows that states have asked for some 13,720 additional miles of interstate routes—and the bureau expects to keep on receiving requests. It puts the states on record for the extra mileage for action when and if the interstate system is extended.

As a matter of fact—with Congress enmeshed in debate over civil rights legislation—it seems sure there will be no time for further action on pending legislation that would (at the moment) increase the interstate net by 7,000 miles. This measure has been lumped with another regulating billboards, and had already been sidetracked before the civil rights debate started.

In view of all this, there is little chance that BPR will allocate the extra 1,000 miles of roads authorized in the 1956 Road Act as long as there is any legislation pending that would raise the mileage authorized still more. For one thing, such an allocation right now would likely bring a rash of complaints from the states—and their congressmen—if requests were turned down.

• **Wait and see**—Right now, the bureau and many congressmen are opposed to increasing the road program until work is farther along. It is already the biggest public works program in history, and no one wants to jeopardize it by letting it mushroom beyond reality both from construction and financing viewpoints.

At present, the program is running pretty well on schedule (ENR July 11, p. 23). With construction on some sections of the interstate net under way in every state but Nebraska (where the first contract was recently let), Delaware and West Virginia. At the close of the 1957 fiscal year, June 30, the states had obligated a total of $2.22 billion of which $1.38 billion went for interstate projects, and $840 million for the so-called ABC (primary, secondary and urban) roads. Actual expenditures for the first fiscal year will run close to $925 million.

For fiscal year 1958—just starting—BPR has set a goal of $2.87 billion of federal-aid money to be obligated.

• **Trust fund is control**—Progress of the federal program, however, is geared by the 1956 law to the special highway trust fund set up by Congress to administer the taxes levied to pay for the new system. Under the terms of the law, construction cannot be permitted to outpace the money on hand in the fund to pay for the work.

Up to 1960, it is expected that the fund will have a surplus of money over annual expenditures. But after that date, construction may have to be held down (at least under original estimates) due to lack of money (ENR April 11, p. 21).

Although the final totals are not available (because of necessary corrections and some lag in reporting), it is expected that the first year's take for the trust fund under the new taxes will fall about $60 million short of the $1.54 billion estimated. Admittedly, it is

Where the Miles Would Go

Proposals for additional interstate routes for consideration under additional 1,000-mile authorization

State	*Proposed Mileage (to nearest 10 miles)*
Alabama	240
Arizona	400
Arkansas	630
California	250
Colorado	290
Connecticut	90
Delaware	20
Florida	320
Georgia	370
Idaho	100
Illinois	600
Indiana	210
Iowa	80
Kansas	150
Kentucky	150
Louisiana	500
Maine	580
Maryland	200
Massachusetts	280
Michigan	150
Minnesota	60
Mississippi	510
Missouri	790
Montana	900
Nebraska	10
Nevada	60
New Hampshire	260
New Jersey	60
New Mexico	320
New York	510
North Carolina	160
North Dakota	430
Ohio	160
Oklahoma	230
Oregon	20
Pennsylvania	380
Rhode Island	40
South Carolina	80
South Dakota	160
Tennessee	120
Texas	1,350
Utah	250
Vermont	60
Virginia	120
Washington	420
West Virginia	510
Wisconsin	40
Wyoming	100
District of Columbia	...
Total	13,720

most difficult to estimate for the trust fund on a long-range basis—for one thing, just how much additional use of the highways (and thus additional fuel taxes) the new roads will generate is hard to guess.

Also, starting three weeks ago (July 1), the trust fund began to get a boost through a bigger bite of user taxes. Estimates are that 1958 receipts will be higher by $277 million than the 1957 receipts taken from this source alone. The boost comes through a specification in the highway act that provided the following:

- During fiscal 1957, 20% of the 10% ad volorem tax on the manufacturers' price on new trucks, buses and other commercial vehicles, went to the trust fund. But from 1958 through 1972, 50% of this tax goes to the fund. This item alone may bring in $75 million in fiscal 1958.
- A 9-cent-a-pound tax on inner tubes begins flowing into the trust fund in the current fiscal year—none went to the fund in 1957. This may bring in $18 million.
- Biggest increase to be channeled to the fund is a 5-cent-a-pound tax on tires used on off-highway vehicles. None of this went into the fund in 1957, but 100% of it goes to the fund from now on. In fiscal 1958, this might bring in $184 million.

• Trust troubles—And, while the trust fund thus gets a boost from extra user taxes, there is still a lot of dissatisfaction in Washington over the fact that the fund has been tapped by the department of Labor to cover administration costs of carrying out the Davis-Bacon provision of the highway act.

Last year, some $300,000 was paid out of the fund to Labor for this purpose, and the department has asked for $365,000 to cover its expenses this year. Congress has finally agreed to dole out $200,000 to Labor—but there are bills now pending that would prevent any further use of trust fund money for this purpose.

The BPR, too, has set up a special watch-dog office to check expenditure of federal funds. Called a Project Examination Division, the office will act something like a bank examiner—auditing and spot-checking both BPR and state operations.

Educational Facilities Top Construction Priority List

The Florida State Board of Control has placed 29 projects in a construction priority list for universities and other state institutions under its control. Top preference was given to educational facilities having a total construction cost of nearly $23 million.

Projects given preference were, a new University of Tampa, $8.6 million; University of Florida at Gainesville, $8.5 million; Florida A & M University at Tallahassee, $3 million and Florida State University at Tallahassee, nearly $3 million. The priority list was prepared at the suggestion of the state budget committee, which will use it as a guide in the allocation of funds for the projects.

Bridge Canyon Dam

Arizonia protests as Los Angeles asks to build at site within their state

Los Angeles Department of Water & Power has applied to the Federal Power Commission for a preliminary permit for a $400 million, 673 ft high dam and powerhouse at the long discussed Bridge Canyon site on the Colorado River. The site is about 110 river miles above Hoover Dam, 225 miles downstream of Glen Canyon, now under construction, and wholly within the State of Arizona.

W&P's move met with loud indignation in Arizona for the site is one on which Arizona has an application pending. Arizonians say that Bridge Canyon is the key point in their proposed Central Arizona Power Project to bring Colorado River water to farms in parts of the Salt River Valley. The dam would be needed to provide power for a pump lift to raise water into a canal for delivery by gravity flow.

But W&P points out that legislation for construction of Bridge Canyon Dam by the U.S. Bureau of Reclamation as part of the Central Arizona Project has twice been approved by the Senate and both times failed in the House. W&P says that if its dam is built, it is conceivable that power can be shared with Arizona, and even that the dam might eventually be a joint venture including Arizona.

Ray Killian, executive secretary of the Arizona Interstate Stream Commission, went on record as saying, ". . . if they are serious about attempting to construct such a dam within the boundaries of Arizona, we shall resist with all possible means."

• A big dam—If the permit is granted, the Los Angeles agency would make studies costing some $750,000 over a three year period. Construction would take another six years, according to J. C. Moller, president of the Los Angeles Water & Power Commission.

The application to FPC provides for a concrete arch gravity structure that could impound 3.7 million acre-ft of water. The power plant would have a 750,000 kw capability, almost twice the share of Hoover Dam alloted to Los Angeles. Transmission lines to carry Bridge Canyon Dam power over more than 400 miles to Los Angeles would cost $109 million over the $400 million.

As presently planned, the new dam would require 5.7 million cu yd of concrete, compared to 726 ft high Hoover's 3.3 million cu yd. Glen Canyon Dam, being built by the USBR as part of the upper Colorado Storage project, will be 700 ft high.

Continuing Boom

Gas pipeline construction climbs in western areas

Plans for new natural gas pipelines in the far West and in Canada indicate a continuing boom in this form of construction, as demand for the product grows rapidly.

Two projects are ready to go as soon as details are cleared. One of them is a $24 million natural gas pipeline from the San Joaquin Valley to the Los Angeles Harbor area, to be built for Southern California Edison Co. of Los Angeles. Once necessary franchises in cities along the route are granted, new gas supplies for the 139 mile line will come from the San Joaquin Valley reserve of Richfield Oil Corp.

The second announcement comes from the Houston Corp., formerly Houston Texas Gas & Oil Corp., which says it will build a $100 million natural gas pipeline in Florida.

Meanwhile, meeting at Jasper, Alberta, the Canadian Gas Association reports that construction of additional major gas lines are a necessity to keep up with predictions of soaring Canadian prosperity.

Capital expenditures directly attributable to western Canadian natural gas within the next five to seven years were forecast at a "reasonable" $2 billion by D. K. Yorath, president of Canadian Western Natural Gas Co., Ltd., of Calgary.

Mr. Yorath and other speakers spoke of an ultimate total reserve of 75 trillion cu ft of gas in Alberta alone.

At the same meeting, Frank M. McMahon, president of Westcoast Transmission Co., Ltd., of Calgary, announced that required governmental authorization is expected to be granted shortly for construction of a 125 mile, 30 in. pipeline from the Savannah Creek field of southwestern Alberta to join an extension which Pacific Northwest Pipeline Corp. would build from Spokane to the international boundary with Canada.

Countersuit Filed in Row Over Los Angeles Arena

The Los Angeles Memorial Coliseum Commission filed counterclaims in June against Stiles and Robert Clements, Los Angeles architects who prepared plans for the proposed Sports Arena rejected by the commission in March. The commission claimed the architects guilty of "breach of contract" through failure to meet contractual agreements by exceeding the proposed $5.7 million plus $500,000 contingency feed budget set for the job.

The commission's suit includes a $346,000 loss of profit claim. The commission states the loss is a result of some four months construction delay due to rejection of the original plans, said by the commission to have been prepared "negligently, carelessly and unskillfully."

The commission's action follows a $374,000 suit filed by the architects in April. In the suit, Stiles and Robert Clements assert this amount is due them for expense incurred in design work and on the basis that they were discharged despite offers to revise their original plans within budget requirements.

Welton Becket & Associates, Los Angeles architects, chosen as second group for the job, submitted new plans to the commission for approval on June 26.

Wright's Arizona Capitol Gains New Supporters

Frank Lloyd Wright's design for a new Arizona capitol has gained support with formation of a group called the Right Capitol for Arizona, Inc. The organization wants the design submitted to the people of the state by referendum.

Organizers of the group include Raymond Rubicam, retired New York advertising executive who winters in Arizona; Prof. Harry Wood, head of the Arizona State College art department and a number of Arizona architects.

Some legislators reportedly fear that the Wright design, a domed hexagonal, story, copper-and-concrete structure (ENR April 11, p. 27) will be accepted if put to popular vote. The lawmakers also are reported to look with disfavor on a proposed 20 story capitol backed by the Central Arizona Chapter of the American Institute of Architects. The legislative body has endorsed a remodeling and extension program for the present capitol, which was built in the early 1900's and said now to be termite-infested. It would include modernizing the building and adding two four-story office wings.

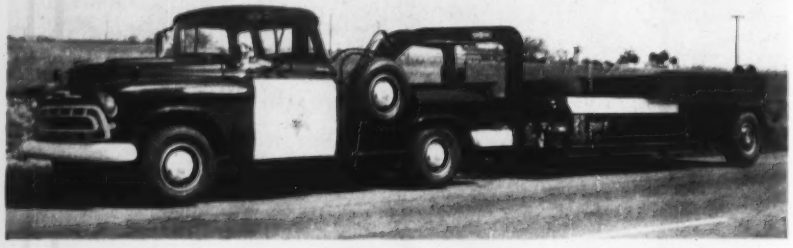
Legal Question May Delay Ohio Road Plan Progress

As suit brought in Ohio courts questioning the status of the state's highway director may prove to be a stumbling block to acquisition of land for highways.

According to an action brought by a Williams County farmer, courts are asked to set aside land acquisition taken this year on the ground that the state has no highway director and thus cannot legally sue property owners to acquire land.

The suit is based on the fact that Charles M. Noble, who will become the state's highway chief, cannot legally be named highway director until after he has resided in Ohio for a period of one year. Mr. Noble now is acting as a consultant for the highway department and George J. Thormyer, in his capacity as deputy state highway director, is acting director.

Highway department legal experts say they believe the present organization will be found legal and that the suit will not be successful.



First Mobile "Weigh Station" for California

The California Highway Patrol has put its first mobile truck-weighing station in service in the Sacramento area, and intends to get five more. The units will enable the patrol to enforce motor vehicle weight regulations at more locations throughout the state. Present weighing activities generally are confined to fixed installations.

A unit includes a tow truck, scale, guide ramps and a trailer weighing 13,000 lb, which can be set up along the highway in 15 minutes.

Patrolmen who have used the new unit indicate they can handle up to 20 trucks an hour.

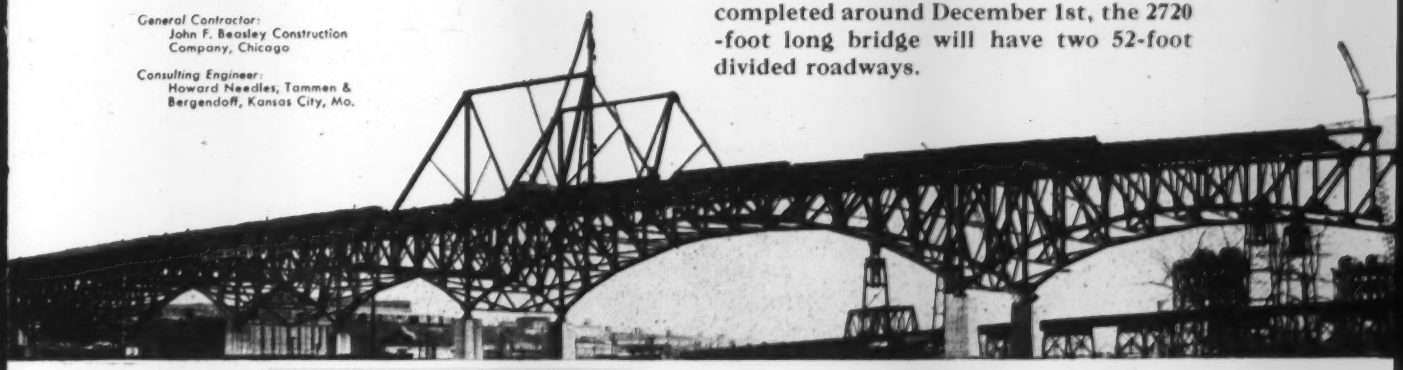
The equipment was built by Locomotion Engineers, Inc., Sunnyvale, Calif., to the patrol's own design and specifications.

This 9-SPAN CANTILEVER BRIDGE for CLEVELAND'S INNERBELT FREEWAY delivered in accordance with owner's time schedule . . .

Fort Pitt Bridge fabricated 13,000 tons of structural steel for this Central Viaduct now under construction for the State of Ohio Department of Highways. When completed around December 1st, the 2720-foot long bridge will have two 52-foot divided roadways.

General Contractor:
John F. Beasley Construction Company, Chicago

Consulting Engineer:
Howard Needles, Tammen & Bergendoff, Kansas City, Mo.



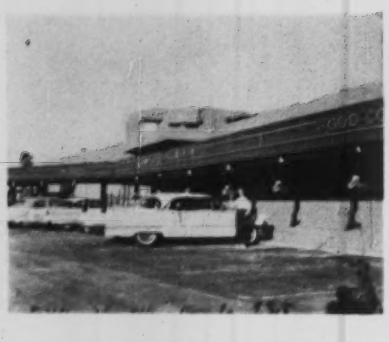
STEEL FABRICATION BY

FORT PITT BRIDGE WORKS

General Offices: **PITTSBURGH, PA.** *Plants at* **CANONSBURG, PA.**

District Offices: **CLEVELAND, DETROIT**

"There is no substitute for structural steel"



Cars Are Air Conditioned At Drive-In Restaurant

Besides serving a patron refreshments as he sits in his car, the new Blue Onion Drive-In Coffee Shop in Las Vegas provides conditioned air for the interior of the car.

A central air-conditioning unit located on the roof of the restaurant delivers conditioned air through a supply-duct system installed under a roof canopy extending around the perimeter of the restaurant. Air is delivered to the individual cars by means of a 6 in. flexible duct that hangs from the canopy at each parking space.

A boot attached to the end of the flexible hose is inserted through the window of the car. The opening in the boot is designed to distribute the air against the roof of the car to prevent a direct flow of air on the occupants.

A small duct at the end of the supply system in the canopy returns to the central conditioning unit to assure a constant circulation within the main duct system and to maintain supply temperature, regardless of the number of cars using the service. The system is said to operate well under outside temperatures up to 115 F.

Sierra Construction Corp. of Las Vegas was general contractor.

Sabine Lake Causeway Reported as Feasible

Plans of a Louisiana and a Texas county for construction of a $1.3 million causeway around the southern end of Sabine Lake have been called feasible by an engineering report.

The proposed causeway, to be built by Cameron Parish, La., and Jefferson County, Texas, through bond financing, is intended to speed traffic between New Orleans and the Port Arthur region of Texas.

Lawrence S. Waterbury, New York consulting engineer, told Louisiana authorities that tolls of 50 cents for passenger cars and up to $2 for heavy trucks would produce an average annal income of more than $177,000—a sum sufficient to cover financing and construction costs.

Citizens Group Gets Anti-Pollution Job Done

Original members of a gadfly citizens Pollution Information Committee concerned with Rhode Island's Naragansett Bay bowed out last month, exactly ten years after they began a successful campaign of needling, wheedling, pleading and exhortion aimed at cleaning up the bay.

In 1947 Narragansett Bay threatened to become an open sewer, with its once-great shellfishing industry near gone and its famous bathing beaches closed. That year the state legislature passed a strong pollution control law and shortly thereafter the private citizens commitee was formed to publicize the Narragansett Bay situation and prod local communities into action.

Today $30 million have been spent or appropriated by Rhode Island and Massachusetts towns for sewage collection and treatment works and the bay pollution problem is about licked. Current largest work is a $4 million rehabilitation of Providence's antiquated Fields Point treatment plant (ENR June 14, 1956, p. 33).

Most observers give the unpaid Pollution Information Committee a large share of the credit for the Narragansett Bay cleanup. Summing up the committee's experiences for the benefit of other communities, Harvey J. Flint, outgoing chairman, said:

"The only thing we had was public opinion. And that's the most powerful thing there is. The politicians can't stand it.

"You see, we didn't have any money; we didn't have any power. Nobody appointed us; we just formed a private committee. But, of course, that helps you to be independent in calling your shots."

The incoming committee's biggest job, as Mr. Flint sees it, is to continue to dispense information, because "if they tell the people, the people will insist that the bay be kept clean."

Briefs

• **Septic tank ban**—A ban on the use of septic tanks in any new residential subdivisions has been ordered in Arkansas' most populous county (Pulaski) because the soil won't pass the state's water absorption test. Excessive amounts of clay and shale are to blame. From now on subdivision plans must include sewage systems.

• **Pay raises**—The South Carolina State Highway Commission has approved pay increases of approximately 10% for department employees. All but top grades will be affected.

• **Extent of damage**—The 1,000 ton coke barge that broke loose from its mooring and knocked out 13 wickets of Lock and Dam 29 on the Ohio River at Ashland, Ky., June 5 (ENR June 13, p. 27) caused only $11,000 worth of damage, according to the Huntington District of the Army Engineers.

• **Alabama utilities**—Atmore, Ala., officials are studying plans to expand the community's water, gas and sewer systems at a cost of about $1.5 million, while at Greensboro, plans are being considered for a complete sanitary sewer system are being considered.

• **New power unit**—Ground will be broken next spring for a new $22 million generating unit in the Monongahela Power Co.'s Willow Island power station along the Ohio River below St. Marys, W. Va. To be in operation by the fall of 1960, the unit will add 180,000 kw to the station's present 60,000 kw capacity.

• **Tons of dust**—Fifty-three tons of dust per sq mi fell each month in Chicago last year, according to the American Municipal Association, which also says the picture is as dirty for New York, Detroit, Philadelphia and Los Angeles. Chicago's Department of Air Pollution Control found that the downtown area of the city was hit by 177 tons per sq mi monthly, tapering down to 25 tons in outlying areas of the city.

• **Water survey**—The U. S. Geological Survey next month will start a survey of falling water tables in the Mississippi Valley embayment area, which includes parts of eight mid-south states. The water tables are falling at a disturbing rate—the area's hydraulic system supplies water for domestic, industrial and irrigation use—and USGS, with a $75,000 allocation from Congress, now proposes to seek ways to recharge them.

• **Chicago office building**—The 15 story America Fore Insurance Group building, one of Chicago's few examples of post war office building construction, was dedicated this week. The building will provide about 230,000 sq ft of rentable floor space. It is built of reinforced concrete construction. Because of site restrictions and the presence of footings of previous buildings, footings were not placed under the columns. Column loads are carried by foundation girders constructed under the sub basement floors. Wacker-Jackson Corp., Chicago, are owners and builders. Alfred Benesch & Associates, Chicago, were structural engineers.

The NEW

JACKSON VIBRATORY COMPACTOR

HAS MUCH MORE POWER and SPEED . . . UNMATCHED ADAPTABILITY TO JOBS OF ALL TYPES!

Here's the machine that will give you maximum density of all materials normally used in macadam base courses and sub-bases with the greatest economy and convenience.

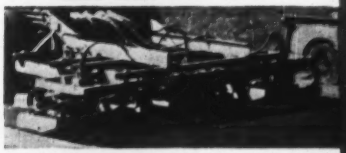
It's a vastly improved version of the Jackson Multiple Compactor which was used with great success on virtually all the nation's important paving projects. It is much more powerful and faster, providing time-saving, full course, single pass compaction. And unmatched as it is for quick and easy adaptability to jobs of all types, it will handle each of them with greatest convenience and least lost motion. Moreover, with this machine you can get into places others can't touch. By all means see your nearby Jackson Distributor (name on request) about this machine or write to us for the complete facts before buying any compactor.

ANY ARRANGEMENT DESIRED OF VIBRATORY UNITS IN THE WORKHEAD TO FIT THE JOB MOST ADVANTAGEOUSLY IS QUICKLY AND EASILY ACHIEVED.

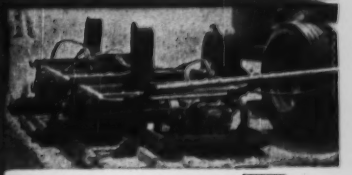
6 UNITS ABREAST FOR MAXIMUM COVERAGE

6 UNITS IN TANDEM FOR MAXIMUM ONE PASS CONSOLIDATION

4 UNITS (or it might be 5) TO EXACTLY FIT JOB WIDTH REQUIREMENTS

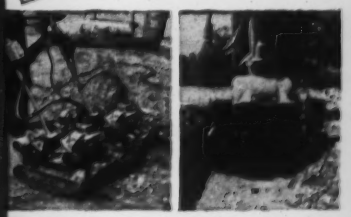


5 UNITS IN TANDEM AND STAGGERED. VARIABLE FOR A WIDE RANGE OF WIDTHS.



4 UNITS TOWED AT SIDE OF TRACTOR. IDEAL FOR ONE PASS WIDENING OPERATIONS.

SHOULDER COMPACTION IS AUTOMATIC. End unit automatically assumes this position — no adjustment required. Prevents raveling.



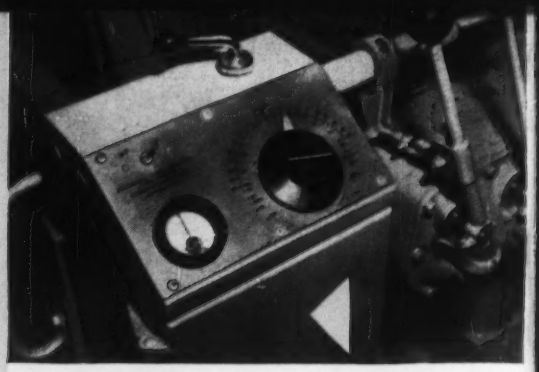
AND FOR SPOTS OTHERS CAN'T REACH.

Any of the compacting units in the Jackson Vibratory Compactor workhead can be fitted with operating handle and used exactly like the nationally renowned Jackson Manually Guided Compactors. Perfect for getting into odd spaces and close to walls, etc. — spots that can't be reached by other equipment. One man with a twin hookup of two of these units will compact up to 1,200 sq. yds. of granular soils in 6" layers per hour.

JACKSON VIBRATORS, INC.

LUDINGTON, MICHIGAN

NEWEST REASON WHY THE CAT* NO. 12 MOTOR GRADER IS THE "STANDARD OF THE INDUSTRY"



Preco Automatic Blade Control is available only on the Cat No. 12 Motor Grader.

The Caterpillar No. 12 Motor Grader rightfully claims the title "standard of the industry." Yet Caterpillar is constantly seeking—and finding—ways to improve this great machine.

Latest advance is the Preco Automatic Blade Control, shown above, which keeps the blade at any desired slope, regardless of the roughness of the terrain. Accuracy in controlling slopes *within 1/8 inch in ten feet* has been demonstrated.

But this is only one more reason why the No. 12 is your best investment in a motor grader. Here are some of the others:

FAST, EASY BLADE POSITIONING: From ditching to bank cutting is a matter of seconds with Caterpillar's superior mechanical controls. Saves time and means a better job.

CAT DIESEL ENGINE: Time tested through 25 years of Diesel leadership. Clean, economical burning of non-premium fuels. Injection valves and pumps never require setting or adjusting.

EXCLUSIVE OIL CLUTCH: Rate of clutch wear has averaged less than the thickness of a human hair for 1,000 hours of operation. Clutch down time is therefore practically eliminated.

CONSTANT MESH TRANSMISSION: On-the-move shifting is easy and fast because large gears remain in mesh, do not have to be shifted.

MANEUVERABILITY: The No. 12 is unmatched in this department. Oscillating tandem drive makes backing across ditches easy. Leaning front wheels make turns shorter, steering easier.

But these brief facts are only a hint of the Caterpillar No. 12's superiority. Get the full details from your Caterpillar Dealer. You can always count on him for fast, dependable service and quality replacement parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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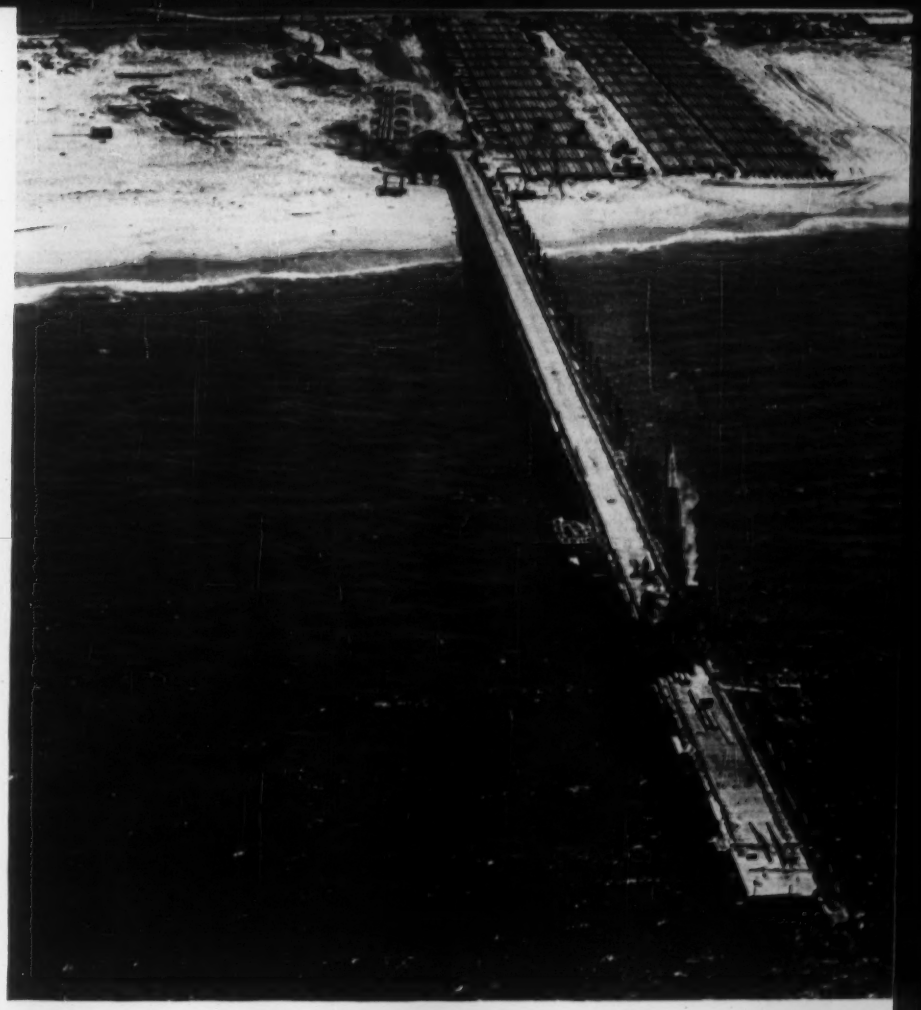
WANTED—
THE HARD WORK



Sludge line pipe lies on the beach in front of the Los Angeles Hyperion sewage treatment plant as finishing touches are put on the launching way pier used in laying the 7 mile steel pipeline.

Ocean Outfall Laid 7 Miles in 7 Days

A 22 in. dia steel pipe was pulled 7 miles into the Pacific Ocean in 7 days late this spring to serve as a sludge outfall for Los Angeles' Hyperion sewage treatment plant.

All sorts of records have been claimed for the job, and few of them can be successfully disputed. Never before has a sewage plant outfall been extended anywhere near 7 miles into the ocean. And never before has an outfall gone to a 300 ft discharge depth.

Pipelines have been pulled into water before, but probably never into such surging ocean surf for such a distance. The fact is that design and construction of the Hyperion outfall have few comparisons. Both were handled with ingenuity, enterprise and daring.

Much credit is due the city of Los Angeles and its engineering consultants, Hyperion Engineers, for the unique design. And comparable credit is due the joint venture of Healy-Submarine-DeLong Constructors for a well-executed construction operation.

Key to the entire pulling operation was a powerful barge mounted winch. Known as the Seamaster winch, it is powered by a 315 hp diesel engine through a torque converter. A double drum unit, it is capable of a single line pull of 660,000 lb at 25 fpm or twice that on a double line.

With the barge anchored in position, this winch pulled the air-filled, concrete-coated-and-lined pipe into the water in 1,200 ft increments, pausing between pulls for changing the barge position while 1,200-ft more pipe was welded on. The actual pull on the pipe was not transmitted to the barge but rather through the winch to a pull line connecting with an anchor sunk in 660 ft of water 9 miles from shore. With careful control of buoyancy the entire assembly was skidded along the gently-sloping ocean bottom until the 7 mile line was in place.

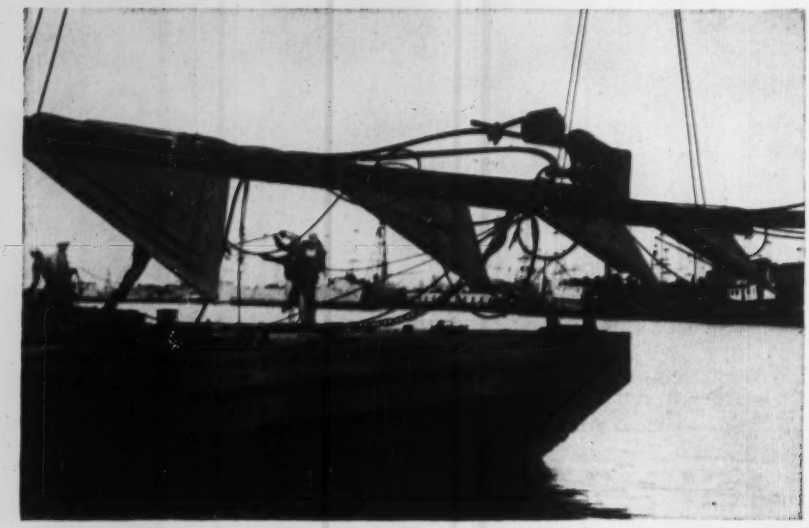
• **Expand disposal capacity**—The $2.5-million sludge line contract is part of a $60 million bond financed program centered in conversion of the existing 245 mgd Hyperion high rate activated sludge treatment plant to a combination of primary and conventional activated sludge treatment with 420 mgd capacity.

A basic problem was the disposal of the vast quantities of sludge to be produced, but this was resolved after an extensive research program established the functional feasibility of piping the sludge 7 miles offshore in an outfall that would discharge in a 300 ft water depth into a deep ocean canyon. Other studies indicated that the outfall construction would be feasible by use of pulling methods such as had been used for offshore oil pipelines.

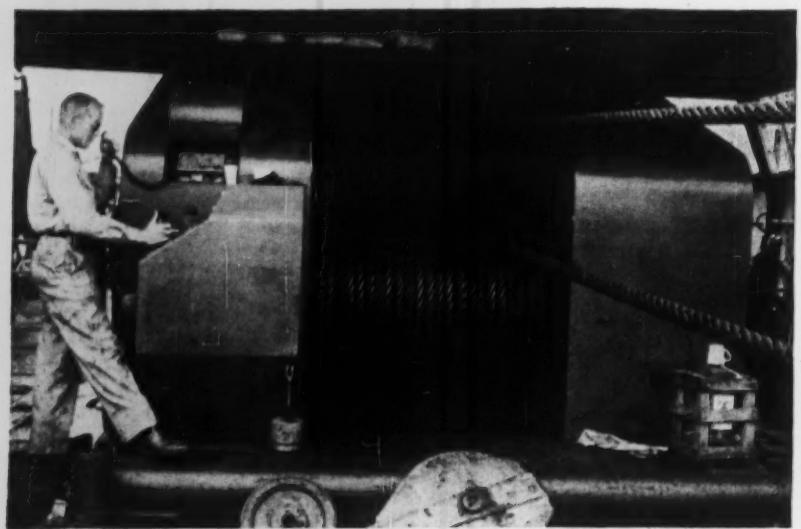
In the existing treatment plant sludge is processed for sale as fertilizer or fertilizer base. But the market for such material is such that it actually costs more to process it—using vacuum filters and driers—than sales bring in return.

In the new plant, sludge will be drawn from two-stage digestion at in-

BARGE dumps double pulling line off its stern. Buoy supports one of the pulley blocks which were installed at intervals, usually where a change in cable size occurred.



MAIN ANCHOR for pull line consisted of two of these fluke-equipped 30-in. I beams.



POWERFUL PULLING WINCH using 2 in. cable hauled the 7 mile pipeline out into the ocean. Winch operator maintained radio communication with control tower on shore.

tervals during the day consistent with plant operation. Actual sludge volume to be moved through the pipeline will amount to some 2½ mgd, with the sludge having about 3% solids content. However, to prevent the sludge line from clogging, treatment plant effluent will be pumped through the outfall when sludge is not being moved. Thus, capacity of the line has been designed for 6½ mgd.

Existing sludge filter and drier equipment will be maintained for use if at some future time it becomes economical to process sludge for fertilizer. One present difficulty is that high grade sludge fertilizer apparently can't be made by using the high rate activated sludge process. Designers believe that the conventional activated sludge process can correct this deficiency, but in the meantime sludge discharge at sea will be practiced.

• **Designed for 100 years**—The sludge line is designed to last for at least 100 years of useful service. This is accomplished by lining the ⅜ in. thick steel pipe with spun mortar and by applying a special coating on the outside. Also, on the chance that there might possibly be a break in the coating, a cathodic protection system has been installed.

The outside coating consists of three layers of coal-tar enamel placed over a primer coat. Between the enamel layers are wrappings of glass fiber placed while the enamel is hot. Covering this is a wrapping of asbestos coal-tar saturated felt. To protect this coating against abrasion during and after placing, a 1⅛ in. layer of reinforced mortar was applied by pneumatic methods; reinforcing is 2x4 in., 12 ga crimped wire mesh.

DIRECTING OPERATIONS from control tower was S. V. "Sammy" Collins.

Since, for the placing operations, the contractors based their calculations on a negative buoyancy of 4 lb per foot of pipe, they held the pipe suppliers to a very close tolerance on the mortar coating. In some instances pipe sections were placed in a lathe and machined to proper tolerance.

The inside mortar lining was applied by centrifugal methods to ½ in. thickness. With the mortar thickness tolerance of ⅛ in., the final interior diameter of the line is a minimum of 20 in.

The pipe was furnished in 40 ft lengths by Consolidated Western Steel Corp. It subcontracted the cement mortar coating and lining to United Concrete Pipe Co., and wrapping to Pacific Pipeline Construction Co.

On the beach opposite the Hyperion treatment plant, the 40 ft lengths were made up into strings of 600 ft. The 30 deg bevelled pipe ends were welded by electric shielded-arc methods with a maximum thickness of ⅛ in. per weld pass. After X-ray inspection of the welds, a field coating and lining similar to that applied in the shop was placed at the joints. The resulting 61 strings were stockpiled at right angles to the beach line in readiness for the pulling operation.

• **Anchor and pull cable**—As the onshore preparations neared completion, the ocean end of the work was made ready. This included placing a 160,000 lb anchor system for the pull cable, 9 miles from shore in 660 ft of water and the placing and connecting of the cable itself.

The anchor system consists of two 42 ft long, 30 in. I-beams to which four heavily reinforced flukes extending some 5 ft down, tooth fashion, are attached at a predetermined angle. These anchor beams installed 120 ft apart, transverse to the line of pull, were connected by steel beams, in turn held down by four 14,000 lb Danforth anchors. By conservative estimate this anchor system could withstand a pull in excess of 1 million lb.

The entire 160,000 lb assembly was attached by a 2 in. cable bridle to a block and anchor buoy which formed the end block for the pull cable. Two pennants of 1¼ in. cable were attached to the stern of the anchor assembly and buoyed off, to be used to retrieve the assembly after completion of the pipe pulling operation.

The pull cable was laid shoreward from the anchor bridle block by the winch barge, which was moved and positioned by its own anchors as it let out the cable from two spooling winches. These winches have 40,000 lb pulling capacity each, and are powered by 165 hp diesel engines.

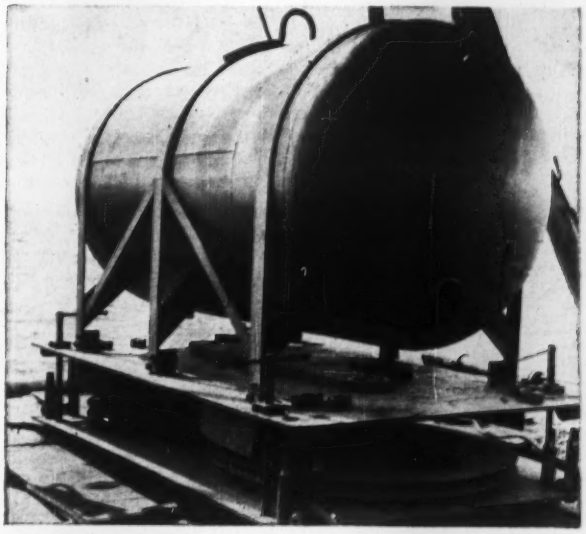
As a cable spool could only accommodate a small portion of the nearly 9 miles of double cable line, the pull cable was divided into sections separated by double-sheave blocks, pontoon-equipped for minimum negative buoyancy. There was a maximum of 9 of these blocks, each generally marking a change in cable size, which began at 2 in. dia and graduated down to 1¼ in. at the shoreward end.

After the pull cable was placed to within about a mile of the shore, an 8,500 ft length of 2 in. line was spooled, with one end on each drum of the Seamaster pulling winch, and the loop end taken ashore and passed through a block attached to a pulling sled at the end of the pipe. When the time came to pull the pipe, the pulling cable, seaward of the barge, was attached to the frame of the Seamaster winch, so that none of the pulling force was transmitted to the barge itself. This attachment was accomplished by bringing the pull cable into specially designed roller bearing carpenter stops on the stern of the barge deck and then connecting it through a block assembly and an eight-part line to the winch frame.

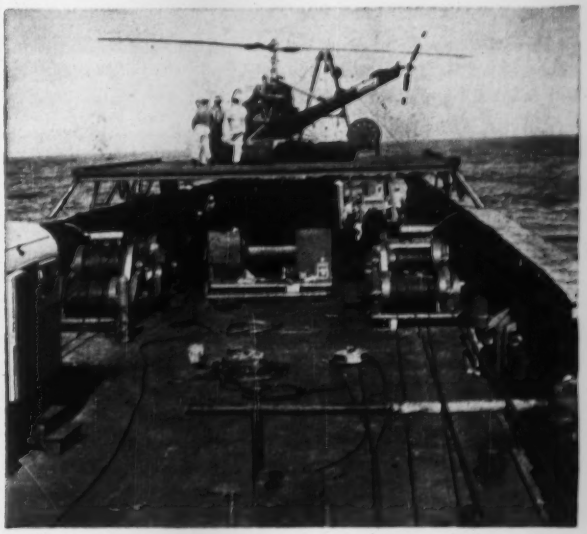
• **Concrete pulling sled**—The pulling sled, made of concrete for extra weight (62,000 lb) and to eliminate steel-to-steel contact between the pull cable and the pipe, served to hold the end of the pipe 3 ft off the bottom during the pull, and will be an end anchor after completion of the work. The cable was attached to the sled by means of a 5 ft sheave. The load was transmitted to the sled through compression in the sled concrete. High strength concrete was used to accomplish the pull force transfer.

Two steel pontoons 5 ft dia by 18 ft long with a total lifting capacity of 40,000 lb were attached to the sled with multiple wrapped bands in turn connected to a patented release mechanism so that the floats could be released after the pipeline was in place. These two pontoons, together with the displacement of the sled proper, left the assembly with a negative buoyancy of about 500 lb.

• **Pipe launching procedure**—To transfer the 600 ft pipe sections from storage on the beach into the pipeline, a 900 ft long launching pier was constructed consisting of a level deck from which a crane and welding equipment could operate and, beside it, a sloping launching way. On this launching way the pipe sections were welded, and from it the pipeline was pulled into the ocean.



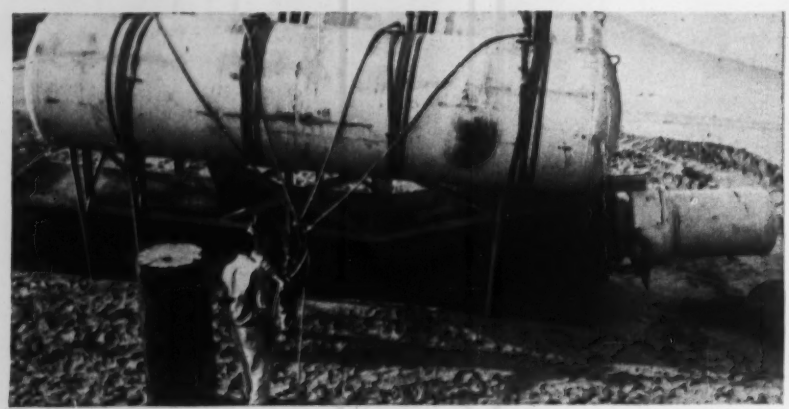
PONTOON SUPPORTED DOUBLE BLOCK connects anchor bridle with pull cable.



HELICOPTER, for quick communication, lands on barge. Main winch is below aircraft. Anchor winches are on either side.

RUBBER-TIRED LAUNCHING UNITS receive pipe as it is rolled sideways on storage skids. Pipe is then pulled out over launching way in background under orders from the control tower.

RADIOGRAPH INSPECTION checks integrity of all welds. Pipeline was made up into 600 ft strings by welding 40 ft sections on the beach before pulling operations began.



LAUNCHING SLED kept outlet end of pipe up off ocean floor. Buoyancy pontoons were later released. Outlet of pipe is capped with tapered plug attached to a buoyant cap.

The first operation in the laying of the pipeline was for tractors to carry the pulling sled down to the water's edge where it could be welded onto the seaward end of the first 600 ft pipe string. Then, since the sled was too heavy to be moved out over the launching way, this section of pipe was pulled directly into the water by the barge winch until its shoreward end was adjacent to the seaward end of the second string. These two strings were then welded together into a 1,200 ft string, and cables were run from its stern to a holdback winch on the beach.

This 1,200 ft string was then hauled into the ocean by the barge until its stern end cleared the end of the launching way. Moved over onto the centerline, the string was then pulled back about 250 ft onto the launching way by the holdback winch. Its shoreward end was thus placed at one of the two welding stations on the pier, ready to have more pipe connected to it.

The second welding station on the pier was 600 ft shoreward so that welds could be applied to both ends of a 600 ft pipe section simultaneously. In this way 1,200 ft of pipe was added to the line between each pull, which was executed by the Seamaster winch on the barge while the holdback winch on the beach kept the pipe in tension and aided in its positive control.

Getting the 600 ft pipe sections onto the launchway so they could be welded into the pipeline was the basic operation on the beach. The sections were stored on 12x12 timber skids over which they could be rolled to the launchway alignment. There the ends of the skids were supported on jacks so that the pipe could be lowered onto special rubber-tired launching units.

Strung in a line over the beach and along the launchway, these launching units furnished a conveyor system over which the pipeline was moved lengthwise toward and into the ocean. At the seaward end of the launchway they were positioned on a vertical curve with a minimum radius of 4,000 ft that allowed the pipe to enter the water at the end of the launching way at sea level. At this point the sea bottom was at a 20 ft depth. The pipeline, as it was pulled out to sea, reached the floor at a point some 600 ft seaward from the last launching unit and described a gentle reverse curve, the portion between launching pier and ocean floor having a minimum radius of 5,000 ft.

Although the specifications required an inside mortar lining at the tie-in welds, the contractors believed that this would unduly slow down the procedure due to the necessity of putting a man inside the pipe to place the mortar lining. Solution to this problem was the use of a pre-molded plastic ring of epoxy resin to fit the inside of the pipe. The

resin was accurately trimmed for quick fit and was sealed to the pipe and spun mortar lining by a suitable mastic. The material is not affected by the heat of the weld, is very hard and yet has substantial ductility.

It took from two to four hours to position, weld, X-ray and coat the two joints required for each 1,200 ft addition of pipe. During this time the pulling barge spooled in the line to seaward end and made ready for another pulling operation.

When the final pull had been made, that portion of the pipe remaining on the launching unit supported over water was raised to clear the units and secured while this section of the pier and launchway was removed. Then the line was gently lowered to rest on the sea floor and the beach.

During pulling operations, the end of the pipe was sealed with a tapered plug having an "O" ring seal. The plug was held in place with a buoyant cap secured by a hook hinge on top and a bolt on the bottom. The bolt was calibrated to break at a pressure of 150 psi, which is in excess of the required 130 psi hydrostatic test. The thinking was that the test could be made and then the pressure could be run up to break the bolt. The assembly would float to the surface by virtue of the buoyant cap.

This latter part of the procedure worked well. But the plug seal leaked some 7 gpm so the hydrostatic test couldn't be made. As a result, the final method of testing was by blowing out the end plug and filling the pipe with air—using the air as a test. This was possible as pressure at the pipe end was in excess of the required 130 psi due to the immersion depth.

• **Communication**—The actual pipe-pulling took place during a 7 day, 11 hour, 30 minute, continuous period in late May. The operation was radio controlled from a tower erected on the beach. Fifteen radio positions were used, with units located at the control tower, both welding stations, pulling winch, pulling barge deck, hold back winch, main office, X-ray trailer and on assorted boats. However, in case of radio failure, visual signals were positioned on the control tower, with red meaning to stop pulling and green meaning to start.

Also part of the job communications system was a helicopter that carried personnel and small cargo loads between the beach and the pulling barge. A landing platform for the craft was mounted on the barge just over the big winch. The helicopter was on the job at all times that the barge was in operation including the preliminary stages of placing anchor line. It could carry two passengers in addition to the pilot. Workers from the barge were hauled in launches as the helicopter was not big enough for such purpose.

• **Pipe buried through surf**—Some 6,000 ft on the shore end of the pipeline is to be lowered or trenched into the ocean bottom sands. Cover to be attained ranges from 4 ft on the offshore end of this section to 15 ft in the breaker area at the beach. A patented submarine pipeline trencher is used for this operation. This underwater device straddles the pipe as it rests on the ocean floor. High pressure streams of water and air are pumped through a series of jet nozzles. The air and water are fed into the machine by a series of manifolds connected by a high pressure flexible hose to a series of pumps and compressors on an attendant barge. As the trencher moves along the pipe, the bottom material is cut away allowing the pipe to settle into the ditch.

Some of the pipe nearest the shore may have to be buried by sinking sheetpiling off the pipe centerline and excavating and backfilling the sand. As this is written, the trenching operation has not been completed so it is not certain how much of the pipe length will be buried by the jet trencher and how much by somewhat slower sheetpile trench methods.

Seaward from the buried part of the pipe, a series of 29 anchors spaced at 500 ft intervals are being placed over the pipe as it lays on the ocean bottom. Each of these anchors consists of two concrete blocks each measuring 4x3½x2½ ft. They are connected by 14½ ft chain of which 3½ ft at each end is embedded in the concrete blocks. Divers control the anchor placing operation.

• **Cathodic protection**—Although the coal-tar coating on the pipe is heavy enough to provide excellent corrosion resistance, Hyperion Engineers decided that a cathodic protection system should be added. Also they required that the system be in operation from the very moment that the first section of pipe entered the water. In combination with an unusual test system, the cathodic installation will allow the condition of the heavy coating to be monitored at all times.

The Hyperion sewage treatment plant generates its own power, using surplus gas from the digesters. Therefore, an ample source of cheap power is available, which is ideal for use as impressed current. The power is supplied to a rectifier near the terminus of the sludge outfall, and is conducted from there through direct burial cables to an anode bed near the shoreline. The maximum impressed potential is 1 volt, and the total current requirement will be 22 amp under the conservative assumption that the coating will have a resistance of at least 4 kilohms per square foot. The rectifier makes it easy to control the amount of current that the pipeline receives.

During construction operations, a recording potentiometer and a recording ammeter were used to provide a continuous log of pipe to seawater potential and of current requirements. This showed that only a small protective current was necessary—less than 1 amp—which attests to the high quality of the pipe coating, and showed that construction operations did not damage it.

Permanent test points for checking future potential drop were installed in duplicate at three stations along the pipe. A reinforced neoprene jacketed cable with stranded cadmium bronze conductors was employed to bring these points to a test panel on the shore. The cable was connected to the steel line by thermite in screw cover boxes sealed with plastic. The test cable was attached to the pipe by wooden blocks routed to fit the cable and banded with steel strapping. Some 15 tons of cable were required for this test system installation.

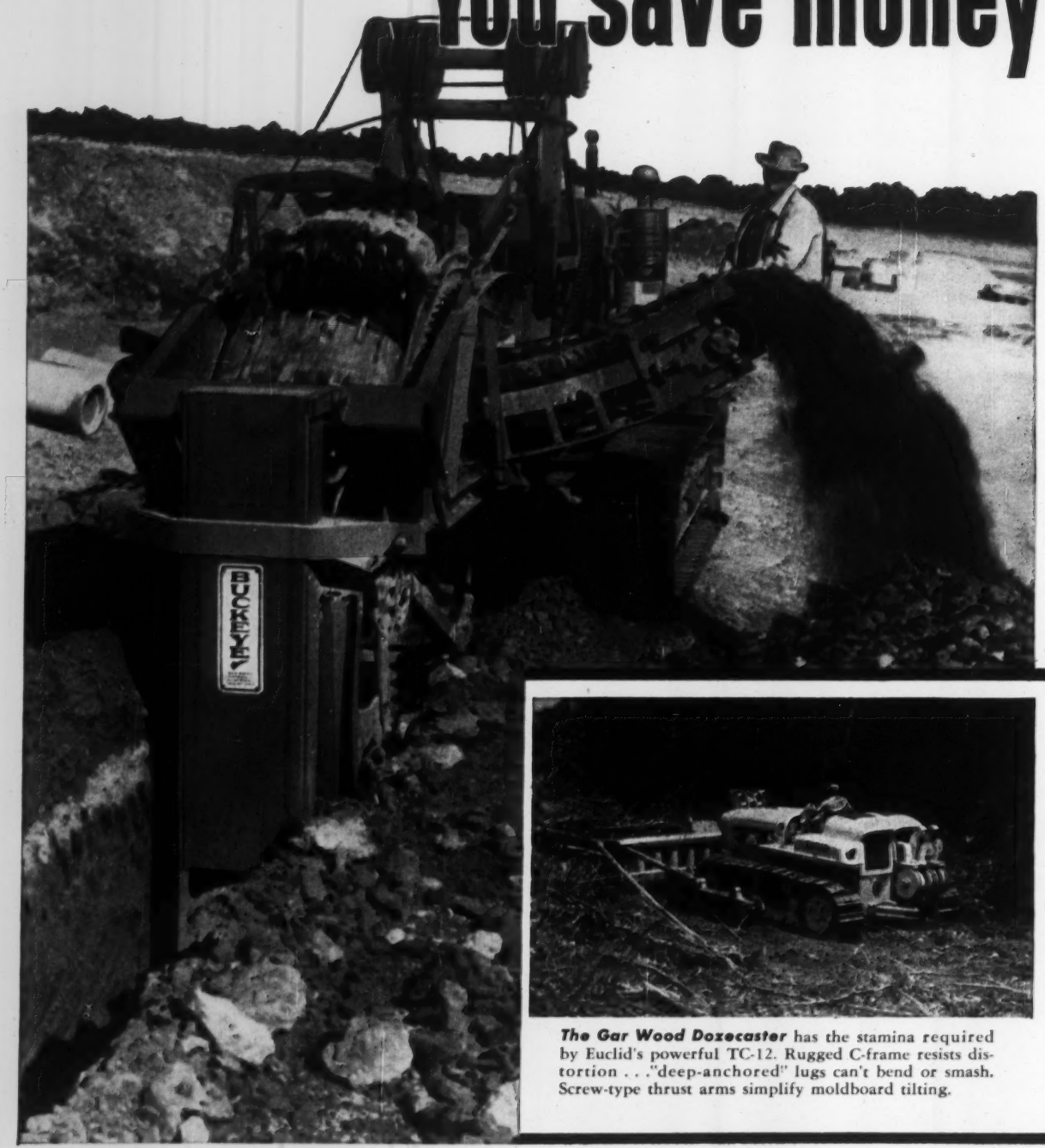
• **Credits**—The Hyperion sludge line is a project of the City of Los Angeles Board of Public Works under the direction of Rear Adm. Cushing Phillips, CEC USN (ret), president of the board. Representing the city in charge of the job was W. T. Anderson, inspector of public works, and Ben O. Badgley, chief surveyor for the Bureau of Engineering.

The work was designed by Hyperion Engineers, a joint venture of Holmes & Narver, Inc.; Daniel, Mann, Johnson & Mendenhall; and Koebig & Koebig. For Hyperion Engineers, David L. Narver, Jr., is project manager, E. H. Graham, Jr., is assistant project manager and D. R. Miller and R. R. Alvy are project engineers.

The construction was handled by a joint venture including Healy-Tibbitts Construction Co. of San Francisco, Submarine Pipeline Construction Co., Inc., of Port Lavaca, Tex., and DeLong Corp. of New York. Robert Helen is project manager for the joint venture and Jarvis Gates is office engineer.

The makeup and installation of the pipeline was handled by personnel of Collins Construction Co., Port Lavaca, Tex., using specialized equipment and procedures whose patent rights are held by S. V. (Sammy) Collins under license to Submarine Construction Co., Inc., for this project. Sammy Collins directed this phase of the operation. He was assisted by Fred O. Wakefield, general superintendent, Jean E. Johnson, general marine superintendent, and S. R. Stapleton, Jr., chief engineer.

You save money



The Gar Wood Dozecaster has the stamina required by Euclid's powerful TC-12. Rugged C-frame resists distortion . . ."deep-anchored" lugs can't bend or smash. Screw-type thrust arms simplify moldboard tilting.

Contractor Lynn Ankrom of Decatur, Illinois, shown above, has dug over 55,000 feet of ditch with his Buckeye 308 with "no major repairs and no downtime to speak of at all!" Dependable production like this is one of the reasons why "Buckeye" has become the most famous name in ditchers.

GAR WOOD

PLANTS IN WAYNE AND

on maintenance when you go Gar Wood-Buckeye

Today's construction proves low input just as important as high output. You can depend on both when you go Gar Wood-Buckeye! With Buckeye ditchers you put in far less time and money on maintenance for the high output these machines deliver. Here's why:

First, Buckeyes are designed to *stand up longer.* Truss-type frame and massive, tractor-type crawlers resist even the heaviest shocks. More anti-friction bearings, fewer moving parts, and oil-bath lubrication of gears add up to long unit life!

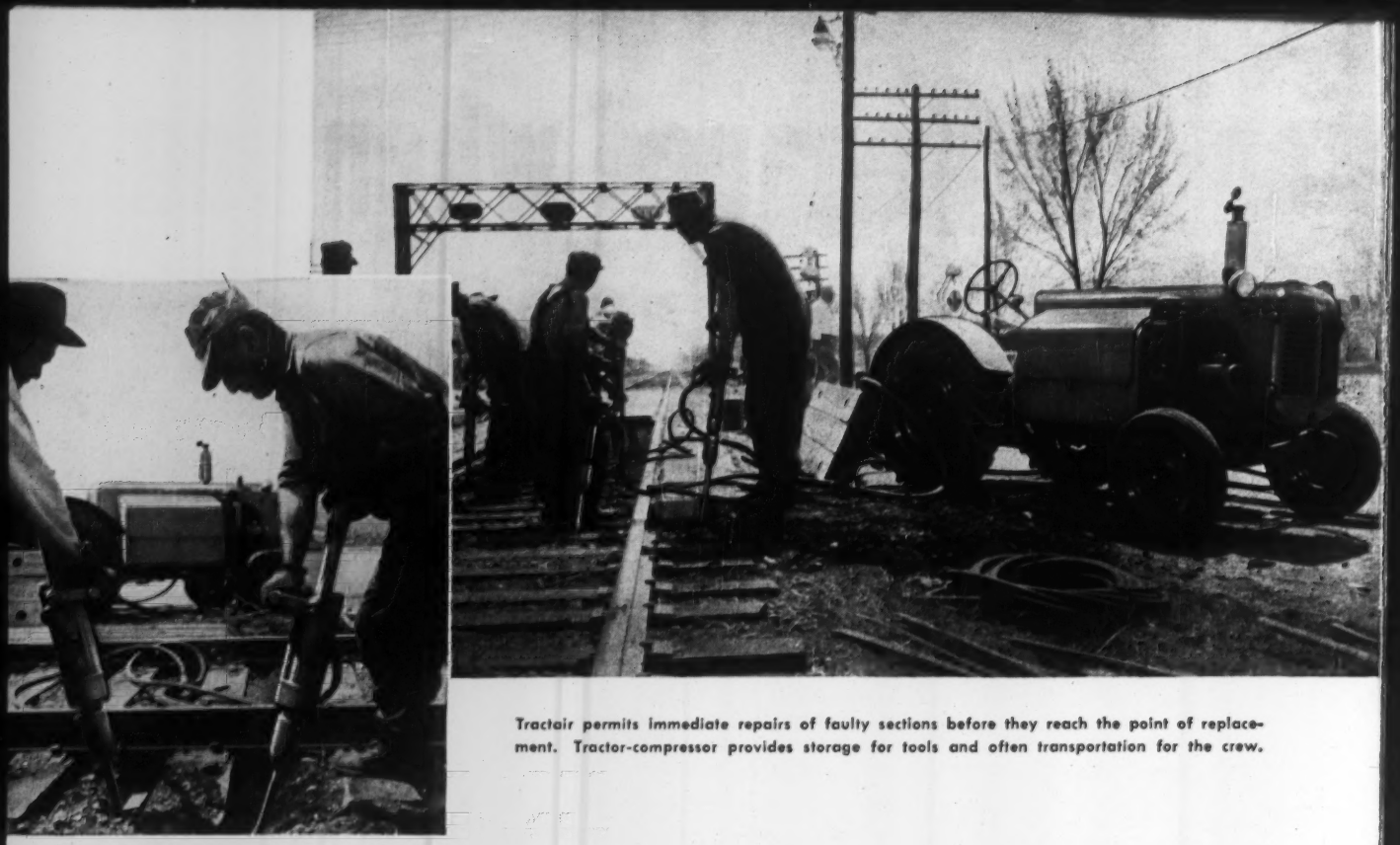
Buckeyes also save money by being *easier to maintain.* Unit construction permits servicing without disturbing other components. Major assemblies and parts are interchangeable, cost less, and are readily available. Contact your Gar Wood-Buckeye dealer for additional facts, or write direct to: Customer Service Dept., Gar Wood Industries, Inc., Wayne, Michigan.

Gar Wood - St. Paul dump bodies and hoists are easy to maintain. Servicing can be carried out by regular mechanics working with ordinary truck tools. "Strong-Arm" hoist design eliminates one-sided dumping strain.

In the Gar Wood 75B, heavy-duty, conical-hook double rollers eliminate pin strain and rocking under load. Massive crawlers are built to take it. Compact design of the machinery deck makes parts easily accessible for servicing.

INDUSTRIES, INC. Wayne, Michigan

YPSILANTI, MICH.; FINDLAY, OHIO; MATTOON, Ill.; RICHMOND, CALIF.



Tractair permits immediate repairs of faulty sections before they reach the point of replacement. Tractor-compressor provides storage for tools and often transportation for the crew.

Tractair* Doubles Track-Upkeep Efficiency

Self-propelled tractor-compressor travels on road or tracks to jobs at crossings or at "inaccessible" bridges.

Multi-purpose unit provides maximum "on-the-job" power for air tools — eliminates delays and long hose lines.

A leading railroad credits the Le Roi Tractair 125 and C10T tie tampers with doubling tamping efficiency around frogs and switches in restricted "off-the-highway" areas.

The company's superintendent of maintenance explains that Tractair's mobility brings air supply to any point along the line . . . permits track repairs without interfering with yard or right-of-way traffic. This easy mobility also eliminates costly handling of heavy stationary compressors — an expense that often discouraged minor repairs that would have extended the life of ties under heavy traffic.

Gets Close to Job

"With the Tractair, we can drive up to the repair or maintenance point on the highway, put the unit on the tracks by lowering the retractable guide wheels, and get right up to the point on the line where the job must be done," the superintendent reports. "We eliminate stringing compressor lines as much as 150 to 200 ft. to the job, and the consequent loss of 3 to 7 lbs. of air pressure for every 50 ft. of compressor line.

"The 3 in. blade of the C10T permits full-power tamping, even in those tight corners around switch points — places that are normally hard to reach, but where maintenance is needed most."

The tool's high-speed impact often permits tamping directly on the original bed, without jacking up the rails. The superintendent adds that a Tractair with four tampers does the work of a stationary unit using six 800-blows-per-minute tampers, and eliminates the need for a jacking crew at most points. What's more, the men themselves prefer the lightweight, shock-proof C10T because it's less fatiguing than conventional tampers.

Uses 30 Tractairs

The superintendent states that this Le Roi combination "is best for our requirements" in maintaining the many points that need frequent servicing—and hundreds of other related jobs. "At present, we have more than 30 Tractairs at work on the road, and envision further increases in the future." Tractair can do the same for you. Write us today for complete information and data.

*"Tractair" is the registered trademark for Le Roi's combination tractor-air compressor.

WABCO

LE ROI Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Newmatic air tools, Tractair,® portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.

Concrete Replaces Wood Power Poles

W. L. Pilsbury
Superintendent
and
C. B. Benham
Chief Engineer
Transmission Construction and Maintenance
Florida Power Corp.
St. Petersburg, Fla.

The Florida Power Corp., seeking a substitute material for wood poles in transmission-line tower construction, has installed precast, prestressed concrete towers as a test study in a 9 mile section of a 110 kv transmission line between Benson Junction and DeLand, Fla.

Larger transmission-line construction programs each year, combined with a dwindling supply of suitable wood poles, have caused southern power companies to investigate the economy and maintenance features of poles made of other materials.

The Florida Power Corp. believes it has found an answer in prestressed concrete towers. Construction, erection and anticipated maintenance costs were studied carefully in the test section. When all the data were in, the prestressed poles showed up very well as a substitute for wood poles.

The tower is a prestressed concrete H-frame, with two 75 ft tall poles, a 39 ft cross arm, V-braces and steel-angle cross bracing below the cross arm.

The concrete poles are shaped like an I-beam. They taper from a base section of 22½ x 35 in. to a top dimension of 11 x 16 in. and weigh about 10,000 lb each. Concrete used in the poles developed compressive strength over 7,000 psi. Prestressing cables are ⅜ in. dia, 7 wire strand with an ultimate strength of 20,000 lb. Reinforcing in the web consists of ¼ in. bars 4 in. on centers.

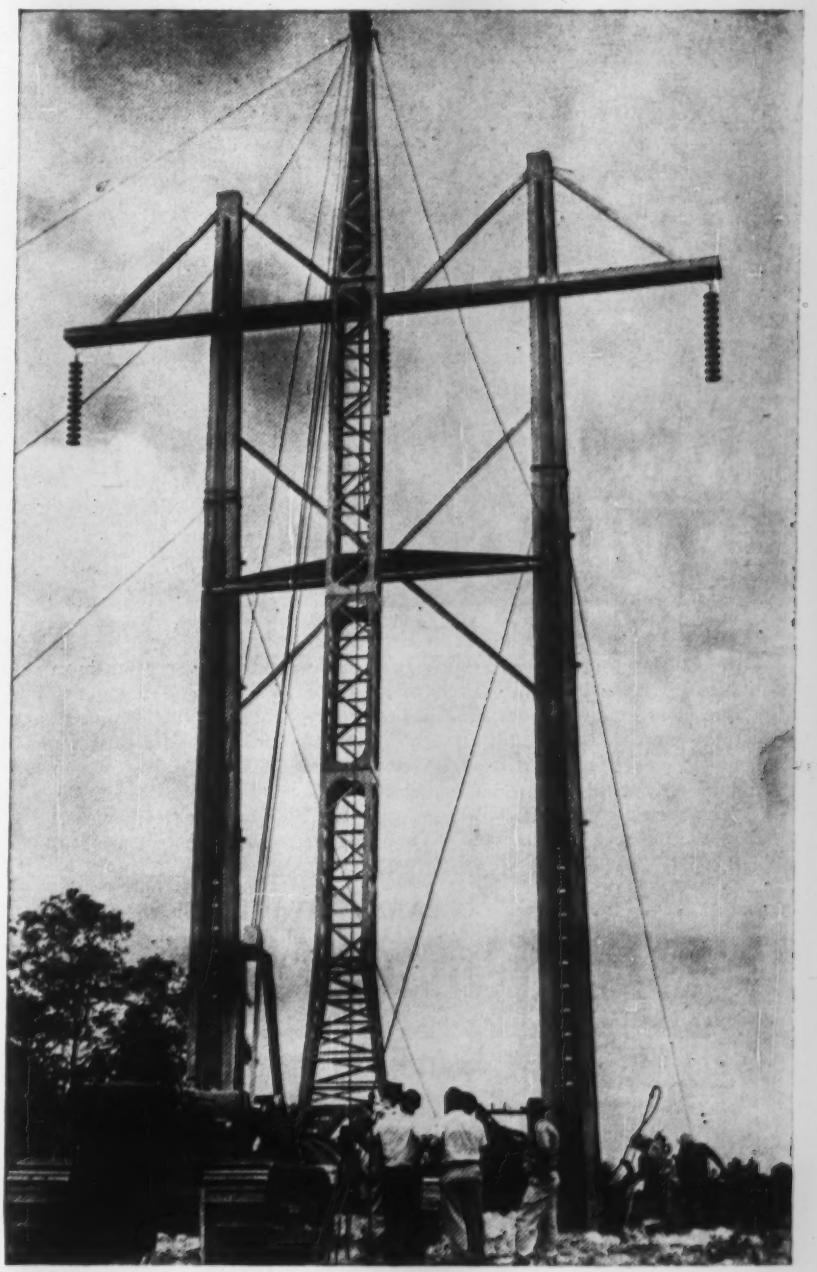
Prior to acceptance, an H-frame was tested to destruction. Designed to develop a transverse strength of 23,000 lb, with the load applied horizontally 9 ft below the pole tops, the test tower withstood 21,000 lb before a defective cross brace failed. Deflection at the top of the frame amounted to 17 in. at the time of failure.

Based on the test data of the trial structure, 51 prestressed concrete H-frames of the same design were installed in the 9 mile section of the transmission line. The frames are designed to resist transverse loads developed by 135 mph winds.

Span between the towers is limited to 1,250 ft, because of uplift forces developed by wind acting against the tower, three conductors and two overhead ground wires. However, the structural strength of the towers is adequate for spans up to 1,650 ft. These larger spans can be obtained if the towers are adequately anchored.

The prestressed cross arm has a section of 8 x 29 in. and is 39 ft long. It is formed with a square hole in the wide side 9 ft from each end. In assembling the tower the cross arm is slipped over the poles and bolted to them at a point 9 ft below the pole tops. The cross arm fits on both sides of the pole giving the same effect as a double arm.

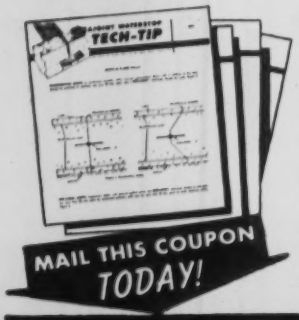
The assembled tower weighs about 12 tons including two sets of V-braces and one cross brace between the poles



Concrete H-frames, being installed on a 9 mile test section of transmission line near DeLand, Fla., are being studied as a substitute for wood pole construction.

NEW TECHNICAL MANUALS ON WATERSTOPS AVAILABLE

We have prepared, in conjunction with various testing companies, a series of factual, technical reports on the subject of waterstops. These Technical Reports cover the many aspects of adequate concrete joint design and should prove to be a valuable addition to your design files. Although these reports are strictly technical information and not sales catalogs, they conclusively prove that DURAJOINT and DURASEAL PVC Waterstops are the only waterstops on the market that will produce a practically 100% watertight joint. Check the coupon below for your free copies of these Technical Reports. Why not mail it now while you are still thinking about it?



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. . . a series of Technical Data Sheets that contain complete information on the design, handling, splicing, installation and structural recommendations on the application of DURAJOINT and DURASEAL Waterstops. Send coupon today for your free set of DURAJOINT "Tech-Tips."

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- ☐ **TECHNICAL REPORT NO. 2** . . . Tests and Methods of Testing Polyvinylchloride Waterstops.
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. . . Prestressed poles

under the cross arm. The 39 ft cross arm weighs about 4,000 lb.

• **Building the line**—Precast members of the frame were trucked about 40 miles from casting plant to site. A tractor with an A-frame then hauled and spotted the parts at the right locations along the right of way. Truck-mounted earth-boring equipment dug the pole holes in the sandy soil. The holes were dug to a depth of 10 ft. An air tamp was used in backfilling around the poles.

The H-frame tower was assembled at the erection site and lifted with a 65 ft boom mounted on caterpillar treads. A complete structure with rigging ready for erection weighed about 30,000 lb. A tractor, pulling the boom, supplied the power for lifting by means of winches and cables.

To prevent damage to the structure while lifting, 20-ft I-beams were bolted to the concave sides of each pole. A spreader bar of heavy pipe, reinforced with a triangular steel plate welded to it, was then connected to both I-beams. The lift cable was attached to the spreader bar. By this method, pole erection averaged two a day.

Linemen climb the tower using step holes cast in the webbing of the poles. The top section of the pole is too narrow for step holes, so a hook ladder is used to reach the cross arm. Armor rodding, conductor and overhead ground wire stringing are performed in the conventional manner.

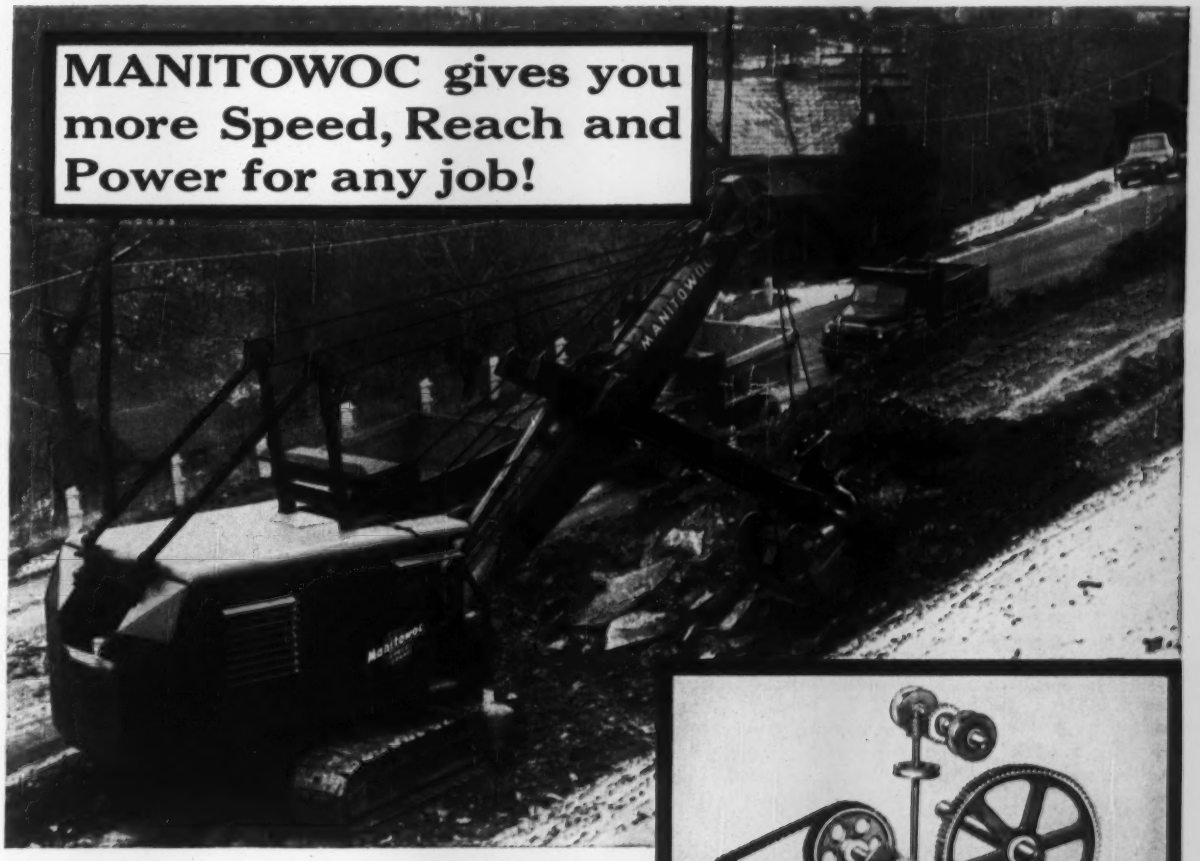
Hauling, framing, erecting and armor rodding of the towers cost an average of $707 each.

• **Cost comparisons**—On a per-mile basis, prestressed concrete H-frames cost $21,916—considerably more than the estimated cost of $13,000 per mile for the standard two-pole creosoted pine H-frame, but one-third less expensive than the cost of a conventional single-circuit wide-base steel tower.

But when the advantages of prestressed concrete construction are compared with wood, including concrete's ability to resist fire damage, more predictable performance, lower maintenance cost and longer service life, the prestressed H-frame towers appear to be a suitable and economical substitution for wood-pole construction.

Finfrock Industries, Inc., of Orlando, Fla., designed and manufactured the prestressed concrete poles and arms based on design and structural requirements furnished by Florida Power Corp. Southeastern Utility Service Co., of Miami, was general contractor for the 9 mile test section.

MANITOWOC gives you more Speed, Reach and Power for any job!



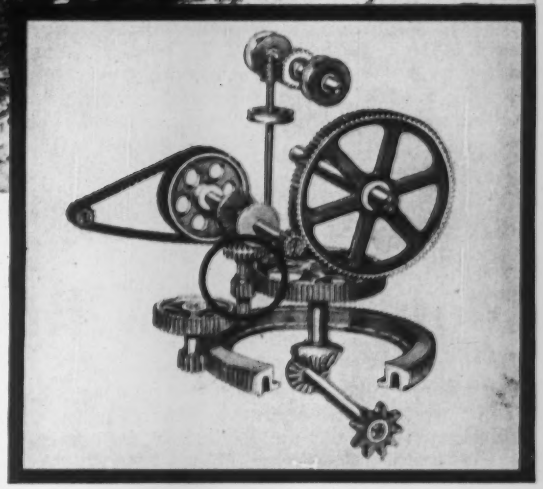
Successful contractors base their bids on a Manitowoc's ability to produce big yardage output — in less time — at lower cost. For instance, R. J. Nichols of New Bethlehem, Pa. uses a Manitowoc 2-yd. Model 3000 shovel to tackle a $1,134,000 highway job for the State of Pennsylvania. The work involves widening a 10 mile, 2-lane highway 4′ on each side and eliminating dangerous curves. An estimated 165,000 yards will be excavated before the job is completed. As a long-time user of Manitowoc equipment, Mr. Nichols, like many other prominent contractors, knows he can depend on his shovel to deliver more speed, reach and power to finish the contract on time — at a profit.

More "LOW-BID" Features

Simple Crawler Drive has positive, jaw-type steering — extremely maneuverable in tight quarters. **Completely Enclosed** travel gears and clutches keep going longer with less downtime. **Simple, Accessible Main Machinery** makes full use of power — is easy to get at for convenient servicing. **Dependable, Disc Type Clutches** are easily adjusted, with discs replaceable in minutes. **Smooth-Acting Air Controls** are available to keep your shovel runner at top operating efficiency the entire shift. **Self-Removing Counterweight** is available for fast, simple moves between jobs within highway load restrictions.

Bid more profitable jobs with Manitowoc — check the finest first, then decide!

Manitowoc Engineering Corp., Manitowoc, Wis.



Simple Design . . . Direct Power Flow

EXCLUSIVE SLIDING PINION arrangement (circle) makes use of only one set of clutches for travel, swing and boom hoist. Only working gears turn — all others are disconnected — for full power at the dipper.

ONLY 3 MAIN SHAFTS cross the rotating bed.

FEWER GEARS AND PINIONS — only 17 are needed in the Model 3000.

GREATER ACCESSIBILITY reduces downtime for maintenance and servicing.

SEE YOUR DISTRIBUTOR NOW!

MANITOWOC

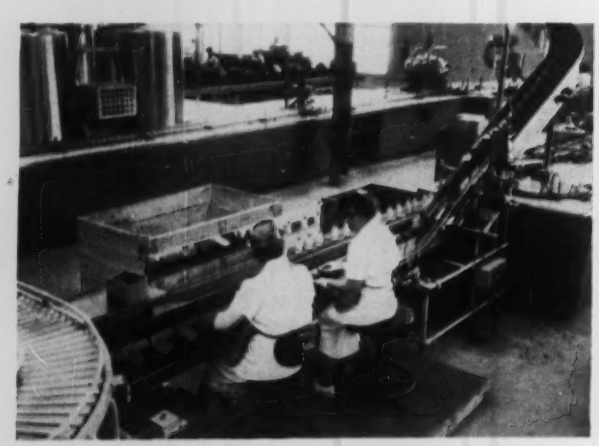
SHOVELS 1-5½ YD. Speed Crane CRANES 20-100 TON

In Johnson & Johnson's huge new medical-products factory in New Brunswick, N. J., long hauls are handled by a fleet of operatorless tow trucks. Propelled by a 7,200 ft long chain under the floor of the three major buildings, trucks move at 60 ft per min.

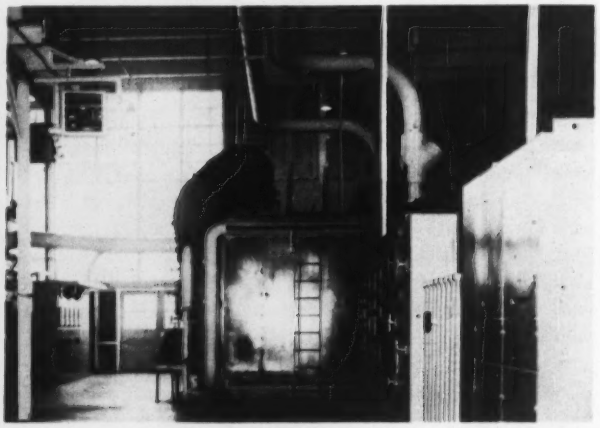
Room to Grow Brightens Plant's Future

The new surgical-dressings plant that Johnson & Johnson dedicated last month demonstrates the results of planning with at least one degree of complete freedom. The site was spacious enough—300 acres—to place no restrictions on size and shape of buildings.

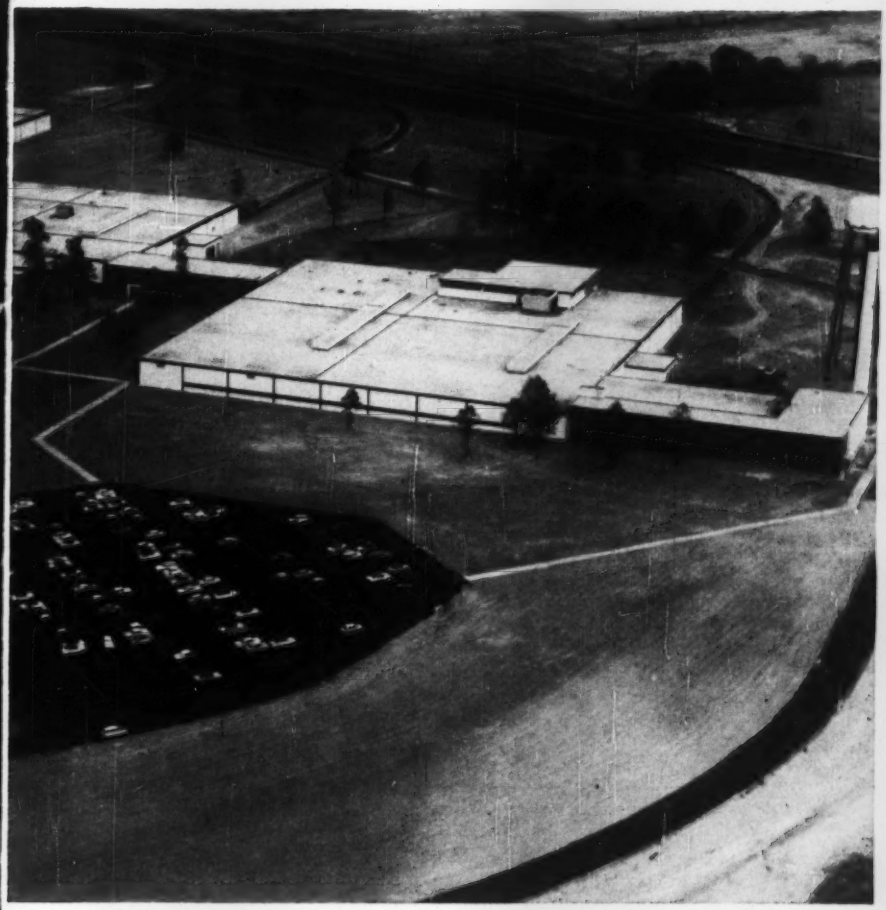
Sprawling across the flat farmscape of central New Jersey, between U. S. Route 1 and the main line of the Pennsylvania Railroad near New Brunswick, the plant consists of three major, interconnected buildings, a separate cafeteria building, and a maintenance wing off one building. Each of the ma-



BABY PRODUCTS PLANT, partly shown, and shipping center, are working now. Plaster mill will begin manufacturing this fall.



HOT-WATER GENERATORS produce water at 427 F and 315 psig. Two of the units supply the plant with 80 million Btu per hr.



jor buildings can be expanded in two directions without reshuffling existing machinery and operations.

• **No preconceptions**—The designers of the 630,000 sq ft installation were also free in another sense besides space. Inasmuch as the new plant was to bring together for the first time four separate manufacturing facilities, at that time scattered about New Jersey, neither the J & J engineers nor those of Walter Kidde Constructors—the New York City firm in charge of design, engineering and construction—had any preconceived notions about how the various parts ought to mesh with one another on a single site.

There were, of course, a number of other definite—and occasionally conflicting—requirements, including expansibility, efficient materials handling, personal comfort, and economy.

• **One-roof idea collapsed**—Not unnaturally, the planners first considered a single building to house all operations. This plan permitted centrally located stores, kept traveling distances short and minimized cost. But all attempts to centralize the stores and surround them with manufacturing operations led to a building with restricted expansion potential.

The group decided then to forget walls and think of the plant as a series of manufacturing operations on a limitless site. After laying out the operations on the scale planned for initial construction, the designers considered the effects of doubling the space requirements. This led them to settle on the idea of multiple buildings as the best way to allow each operation directions in which it could expand without encroaching on areas assigned to other work.

The services have built-in expansibility too. The main electric substation has room for more transformers. There is space in the boiler room for another hot-water generator. And room will be available when needed for another motor-control center.

Two particularly outstanding features of the plant are its electronically controlled internal transportation system and its heating system, utilizing high-temperature hot water (ENR July 5, 1956, p. 98).

• **Dragline conveyor**—The transportation system consists of a moving chain recessed in the floor and a fleet of operatorless tow trucks. The chain, 7,200 ft long overall, connects all three of the major buildings with a 3,600 ft long, two-way dragline conveyor. Every 15 ft along the chain is a pickup dog, and on the front of each tow truck is a drop pin. The pin, lowered through a continuous slot in the floor above the chain, is engaged by a pickup dog, and the truck is drawn along at 60 ft per min to some predetermined location.

The destination, one of 19 locations in the plant, is controlled by setting a selector switch on the truck. On approaching its assigned destination, the truck picks up a coded electronic signal emitted by apparatus beneath the floor. This energizes either a bell or light, thus alerting a workman, who then takes charge of the truck.

• **High-temperature water**—The heating system is a type relatively new to American industry. Water is the circulating medium, heated to high temperatures and kept in the liquid state by high pressures. In the J & J system, the water is heated to 427 F and leaves the boiler at 315 psi gage pressure. Circulation pumps boost the pressure to 426 psig. Elsewhere in the system, pressures are lower but do not drop below 75 psig.

The water is used directly in unit space heaters as well as in heat exchangers for generating low-temperature hot water and in flash converters, where it is allowed to flash into steam for process purposes.

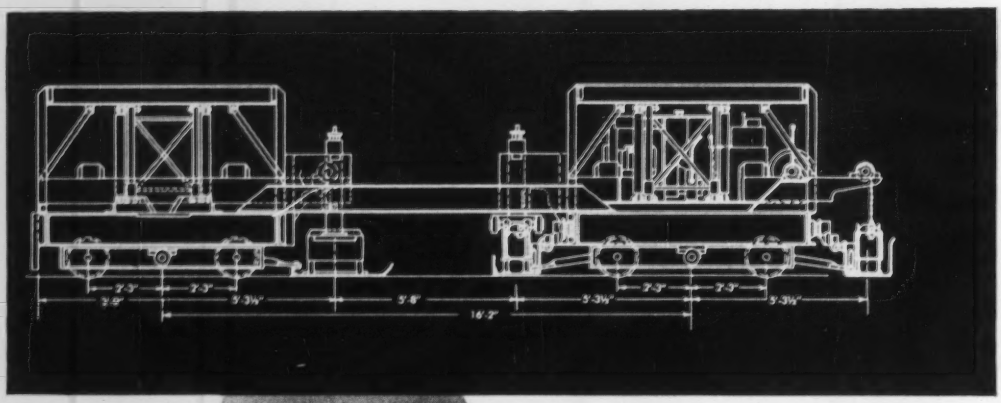
Among the advantages of the high-temperature water system: it incorporates relatively small pipes since volume for volume, water can store and deliver more heat than steam; pipes are elevated and slopes only for construction and operating convenience since the system is liquid-filled and depends on pumps, not gravity, for return; the medium lends itself to long-distance transmission without high heat losses. At J & J some units are more than 3,000 ft from the boiler room.

Two forced-recirculation boilers, said to be the first used industrially in this country, generate the hot water. Each is rated at 40 million Btu per hr.

The buildings are one and two-story steel-framed structures, with poured gypsum and steel roof decks. Walls are constructed of insulated steel sandwich panels and of concrete block faced with white stucco or colored brick. North exposures contain large window areas. Other walls contain vertical and horizontal ribbon sash.

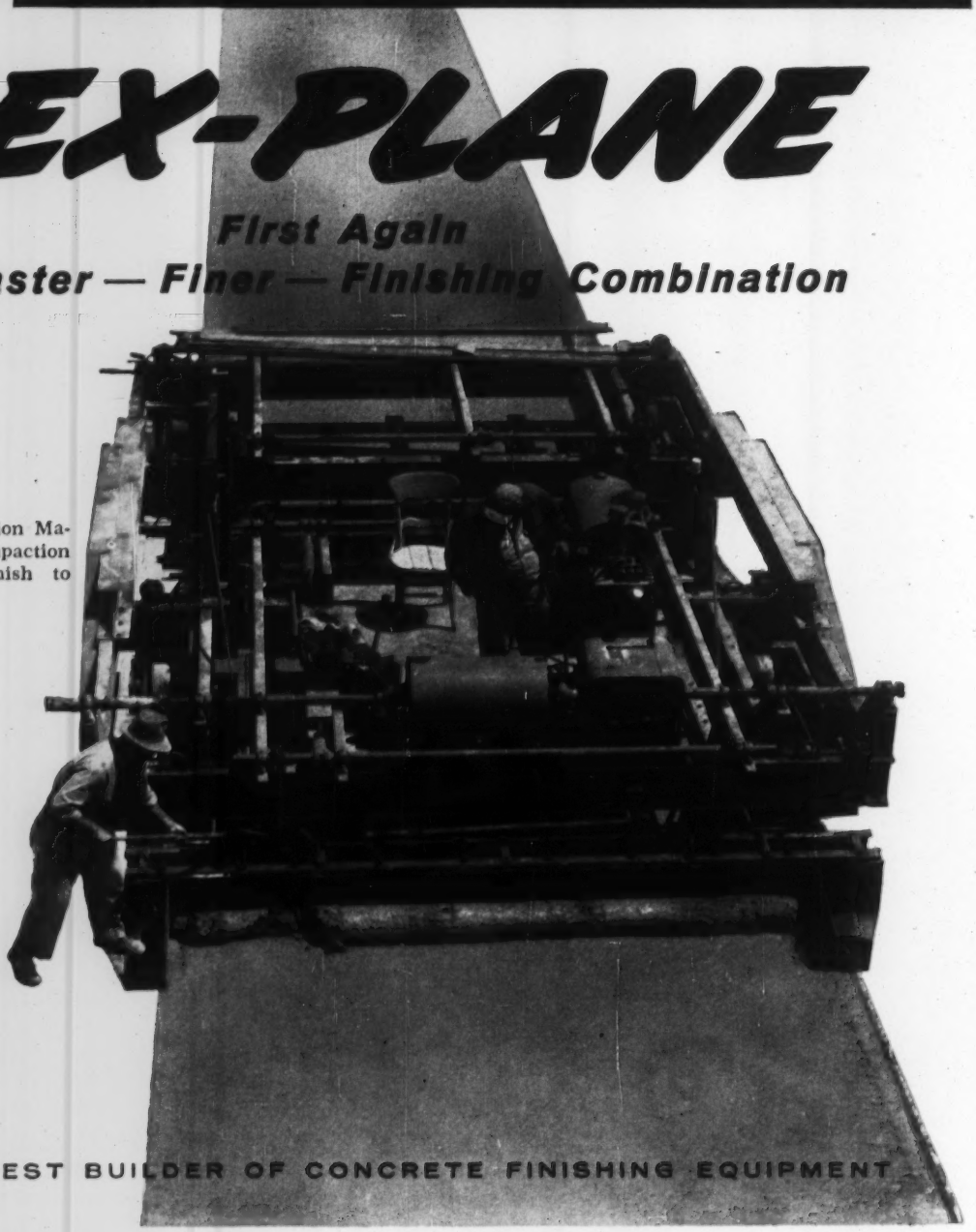
The Kidde design team was headed by Frank L. Whitney, vice president in charge of engineering, and John A. Faas, assistant chief engineer. D. W. Mitchel superintended construction.

Two Detroit Special finishing machine frames engineered into one rugged unit combining finisher and float operation. Equipped with quick crown change screeds. Supplied in either 12' to 18' or 20' to 25' working widths. Hydraulically controlled pneumatic tired transportation assemblies optional.



FLEX-PLANE

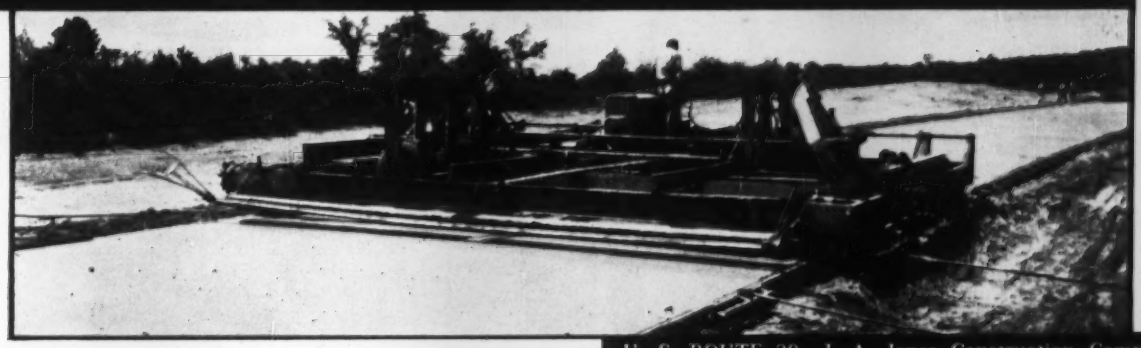
First Again
with Faster — Finer — Finishing Combination



"FLEX-PLANE" Combination Machine gives greater compaction and applies superior finish to Connecticut Turnpike.

WORLD'S LARGEST BUILDER OF CONCRETE FINISHING EQUIPMENT

U. S. ROUTE 16—near Farmington, Michigan. Loselle Construction's Combination increases daily finishing average



"... 4400 feet of 22-foot pavement finished in one day." ... "keeps up with three dual drum pavers." ... "450 lineal feet of 24′ pavement per hour." These are typical reports from contractors using the revolutionary new Flex-Plane Combination Finisher-Float Machine which does the combined jobs of transverse and longitudinal finishers. On the average, users finish over 3000 feet of pavement a day, requiring only two or three hand finishers depending on type of joints being used.

On-the-job checks show longitudinal surface smoothness to be unsurpassed by any other equipment regardless of condition of forms. Results prove it to be the fastest, most efficient finishing machine in use today.

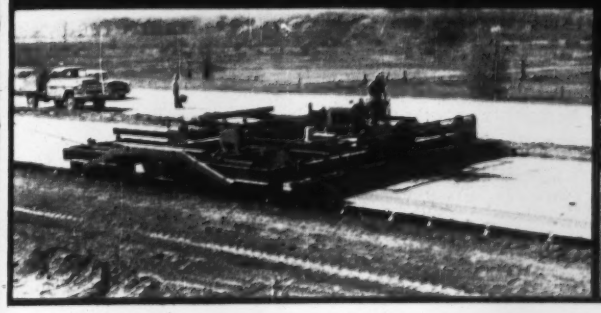
But why not get all the facts? Write today for your copy of the data-packed "Flex-Plane Finisher-Float Machine" brochure. See for yourself why contractors consider it the finest machine of its type in the world.

368

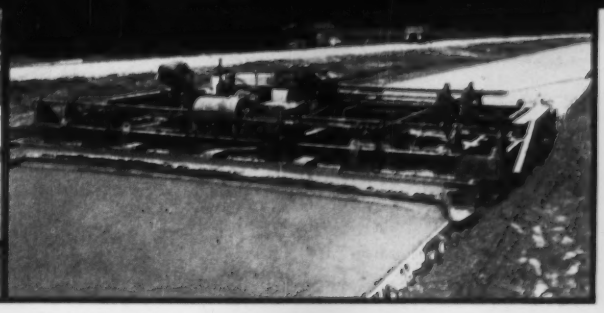
U. S. ROUTE 30—J. A. Jones Construction Company uses combination machine on straightaway paving—Flexplane self-widener on interchanges near Mansfield, Ohio.

CONNECTICUT TURNPIKE—DeLillo Construction Company's Combination cuts hand finishing to a minimum.

U. S. ROUTE 12—Kalamazoo, Mich., bypass is worked by Carl Goodwin & Sons. Contractors generally report substantial savings over previous finishing methods.

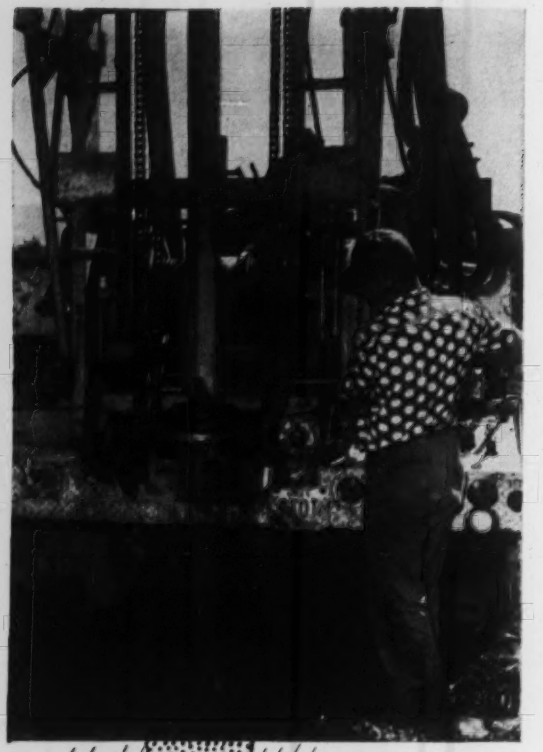


U. S. ROUTE 23—Combination Machine owned by Denton Construction Company keeps up with three dual drum pavers south of Brighton, Michigan.



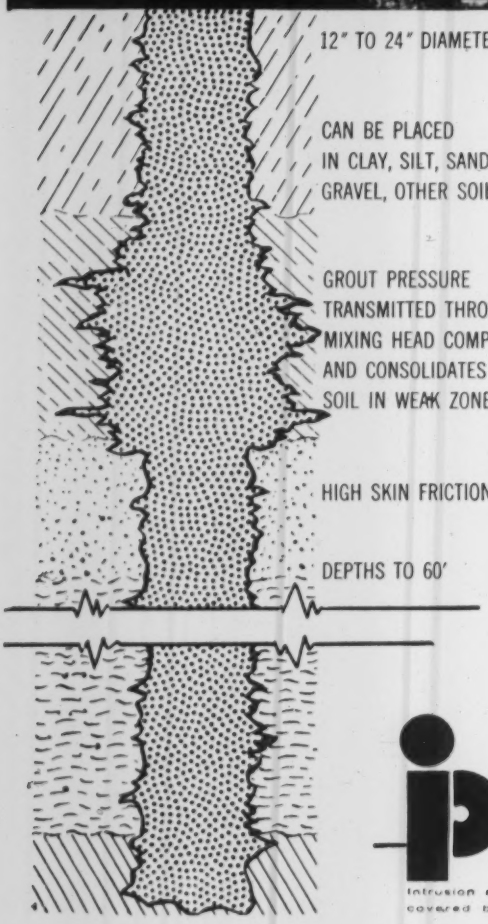
THE FLEXIBLE ROAD JOINT MACHINE COMPANY

520 THOMAS RD., WARREN, OHIO



NO VIBRATION OR GROUND HEAVING—
Truck-mounted mixing equipment places versatile Mixed-in-Place piles without removing material. Piles can be placed in many sand, gravels and rock-filled soils not penetrable by driven piling.

economical cut-off walls made with mixed-in-place* piles


12" TO 24" DIAMETERS
CAN BE PLACED IN CLAY, SILT, SAND, GRAVEL, OTHER SOILS
GROUT PRESSURE TRANSMITTED THROUGH MIXING HEAD COMPACTS AND CONSOLIDATES SOIL IN WEAK ZONES
HIGH SKIN FRICTION
DEPTHS TO 60'

Mixed-in-Place piles, a patented INTRUSION-PREPAKT technique, can be placed with overlapping elements to form a tight, sub-surface water cut-off. This cost-saving method was recently used instead of sheet piling for cut-off walls under the spillway sections of Slaterville Dam, Ogden, Utah and Putah Diversion Dam, Winters, California.

Originally developed and widely used for underpinning, bearing piles and soil stabilization, Mixed-in-Place piles are placed without the vibration commonly associated with driven piling. Highly mobile equipment mixes INTRUSION grout with in-place soil to produce a pile of excellent load bearing capacity.

When overlapped, Mixed-in-Place piles make effective shoring walls for construction or water-tight cut-offs and cofferdams. This often eliminates excavation, shoring, dewatering and backfilling. Mixed-in-Place piles in diameters from 12 to 24 inches can be placed at depths to 60 feet.

For further information,
contact INTRUSION-PREPAKT, INC., Room 568-H,
Union Commerce Bldg., Cleveland 14, Ohio.
In Canada: INTRUSION-PREPAKT, LTD.,
159 Bay Street, Toronto, Ontario.

*U.S. Patent Nos. 2,313,107; 2,655,004; 2,782,605 and Patents Pending

INTRUSION-PREPAKT, INC.

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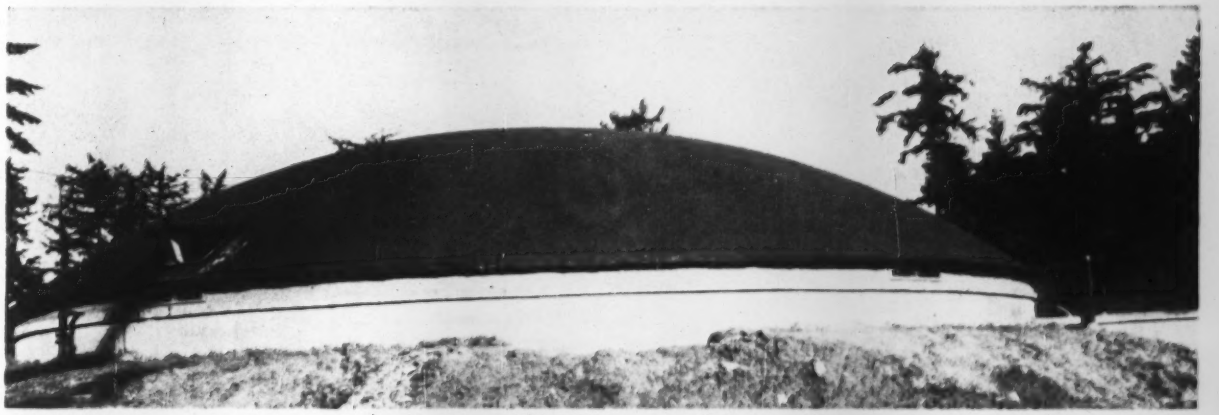
Intrusion and Prepakt are trade marks of Intrusion-Prepakt, Inc., whose methods and materials are covered by U. S. Patents Nos. 2313110, 2655004, 2434302 and others, also patents pending.

WOOD DOME frame is erected over a 500,000 gal reservoir at Beaverton, Ore. Frame was built up on floor of reservoir and raised on gin poles as it grew in size.

TENSION RING (arrow) atop pipe column contains horizontal thrust of the dome.



DOME FRAME was sheathed and a builtup roofing applied. The dome is 75 ft in diameter and its crown is only 13 ft above the reservoir walls. The reservoir was covered to protect the municipal water supply from air borne contaminants and other refuse.

Wood Lamellar Dome Roofs Reservoir

The City of Beaverton, Ore., has covered its 500,000 gal municipal reservoir with a wood dome of lamellar construction.

The roof was necessary to protect water supply against all sorts of pollutants. Located in the middle of a residential section, the reservoir had become a target for a wide variety of foreign objects ranging from grasshoppers to shoes. Its location in a residential district dictated that whatever roof structure was installed it had to be of a minimum height.

The reservoir is a circular, 75 ft dia, concrete-walled tank. It was decided that a wood dome would be light enough and that its reactions would be distributed around the perimeter evenly so that reinforcing of the existing walls or special footings to take concentrated loads would not be required.

The 75 ft dia wood dome rises only 13 ft above the reservoir walls. All structural parts of the dome are made of 2 x 6 Douglas fir coated with an oil preservative.

The dome was assembled on the reservoir floor, starting with the structural members making up the crown. As the dome grew in size, it was raised on three gin poles and finally lifted into position on top of the reservoir wall.

The dome framework was anchored to the wall on pipe columns spaced around the perimeter. A steel tension ring atop the pipe columns resists horizontal thrust of the dome.

The dome was covered with 1 in. cedar sheathing and a builtup surface applied over the sheathing.

Including sheathing, builtup roofing, ventilators and painting, the dome cost about $2.04 a sq ft. Area covered by the dome was 4,676 sq ft.

General contractor was Doerrie Construction Co., Beaverton. The dome was designed, fabricated and erected by Timber Structures, Inc., Portland, Ore.

WOOD FRAME parts are made of 2 x 6 fir coated with an oil preservative. Dome was constructed from the center outward—beginning with the assembly of six triangular sections making up the crown.

Bridge Over a Bridge Under a Bridge

ONE TRACK carries traffic in both directions, while new floor system is installed on other to meet new span.

A very large share of the meat—and a good deal of other produce—that finds it way to eastern seaboard dinner tables is said to move over one railroad bridge in Cleveland. This double-tracked structure crosses the narrow, tortuous Cuyahoga River and a maze of riverside trackage and industrial installations.

And so, when the U.S. Army Engineers—in the course of their long-range program to widen, deepen and straighten the Cuyahoga—decided that a longer river span would be needed—they posed a two-fold problem for the contractor:

Train operation must not be interrupted during construction of the new span, and for a very minimum of time during removal of the old one; the new structure must be built on exactly the same alignment as the old.

In addition, the 50-year-old span to be replaced was a single-leaf bascule of such length that it could not be opened after the replacing lift span was erected; thus the construction problem was magnified even more.

Further, the contractor had only four winter months—when river navigation slacked off because of ice—in which to erect the 267 ft long, 1,600 ton lift

span, install all cables, controls and machinery and cut out and remove the old 1,200 ton (with counterweights) bascule.

• **Situation**—Officially "The New York, Chicago and St. Louis Railroad Co., Bridge No. 184.50 (U.S. No. 15) over the Cuyahoga River", the structure in question is more familiarly known to Cleveland residents as the Nickel Plate bridge.

Built in about 1906, the original structure consisted of a 2,800 ft long trestle standing on four-legged steel towers and a 167-ft-long single leaf bascule span mounted on pile-supported concrete and masonry piers that stood almost atop the bulkhead line. The bridge stands almost at the center of a sharply curved switchback near the lakefront area—a curve that makes difficulties for the long lake ships that use the river channel and which is to be flattened and widened in dredging operations.

The problem, then, was to build new piers further inshore, and a new span over the water. This, of course, entailed reconstruction of several of the approach spans as well.

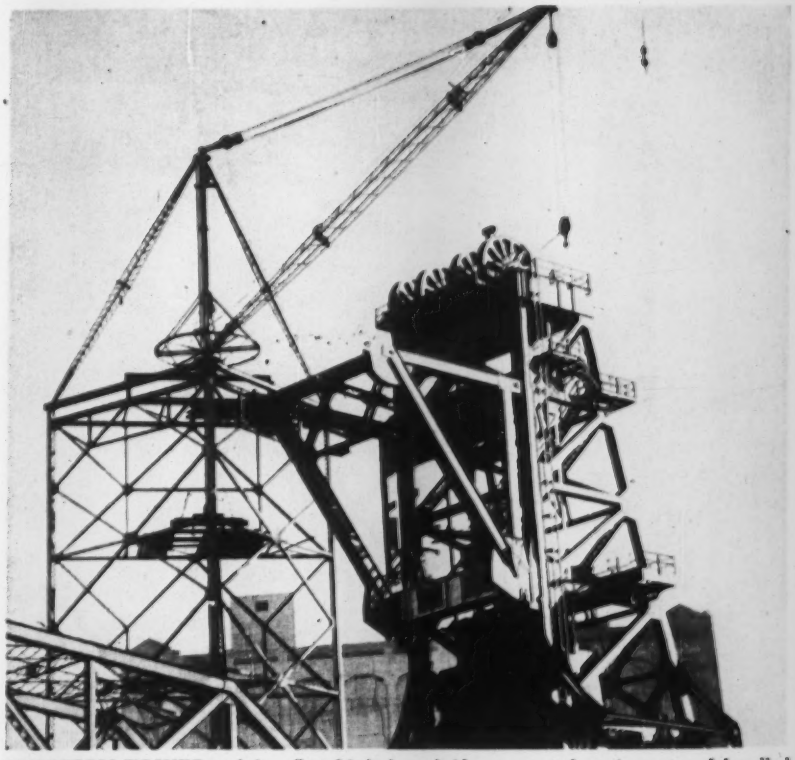
Under designs prepared for the project by the New York consulting firm of Hardesty & Hanover, substructure work was completed by mid-1955 by the Hunkin-Conkey Co., of Cleveland. This consisted of casting two four-legged reinforced concrete piers for the new towers, under and around the existing trestle supports. These piers, founded on concrete-filled caissons drilled to underlying rock, consist of four legs, each 10 x 13 ft in cross section and 60 ft high above mlw, 33 ft on centers transversely, 46½ ft on centers longitudinally. Between the legs of one of the piers (on the west side of the river) a one-track spur railroad track passes.

On the east side, the concrete for the new pier had to be cast around two of the legs of the trestle support in order to get the work done without interfering with railroad operations. Steel trestle members were boxed, and concrete placed around them.

• **Steelwork**—In mid-July, 1955, Karl Koch Steel Erecting Co. of New York City moved on the scene, under a $1.4 million subcontract to Mt. Vernon Bridge Co., superstructure contractor, that covered complete steel erection.

First move for Robert Koch, a vice president of the company who acted as job superintendent, was an unusual one, taken to insure uninterrupted work for his crew as well as the least possible interference with the railroad.

On steel pile foundations, he erected two triangular towers, each 150 ft high, with sides 40 ft long. Atop these—



ERECTION TOWER at left—offset 20 ft from bridge—mounted equipment and handled steel for new lift span, towers and approaches.

placed 20 ft to the south of the existing bridge on both sides of the river—he mounted stiffleg derricks, each equipped with a 100 ft boom and a 20 ft jib and capable of lifting up to 30 tons at 90 ft radius, 55 tons at a 45 ft radius.

From these towers Koch subsequently handled all erection, including that of the new span, thus eliminating need for a traveler, or for equipment mounted on the existing structure that would have to be moved or specially constructed to avoid interference with the trains.

• **Move over**—With these towers erected, the contractor began work on the east side approaches. First move was to erect a new steel bent just behind the new eastern pier to pick up the trestle load, so that the existing trestle support, projecting through the new concrete, could be cleared away.

Next step was to shift railroad operations to the westbound track and cut the eastbound track so that its floor system could be rebuilt to meet the new span. With the old floor system cleared, two new approach girders, each 80 ft long and weighing 37 tons, were placed, and two of the lift tower stringers were put in place.

A special problem developed here, since the floor beams had to project under the westbound track—still in operation these beams could not be installed at this time, and the stringers were carried on falsework placed atop the new pier. The falsework needed was refabricated on the job out of the old approach girders.

Once work on the eastbound track approach was completed; new track was laid, railroad operations shifted to it.

New floor beams and stringers were installed for the westbound track after removal of existing rails.

While working on the westbound side, Koch also began erection of the two 130 ft-high (above the concrete piers) riveted steel towers that would carry the lift span itself.

• **Wait for winter**—With the towers erected and with the lift span itself built out to the first panel point, work had to stop to await winter's shutdown of major navigation on the lakes. Even at the top of the new towers, the completed lift span wouldn't have been high enough to permit opening of the bascule span for shipping.

(Navigation on the Cuyahoga itself seldom actually comes to a halt, but the big lake boats do tie up for the winter, usually about Dec. 1, when ice on the lakes becomes too thick for them. Some small craft continue to operate on the river but do not require opening of river bridges.)

The new lift span was to be erected

. . . Bridge over a bridge under a bridge

WHILE TRACK WORK goes ahead and new trestle supports go in, steel begins to rise (center) for lift tower.

as cantilevers from the two lift towers. First panels were tied to the towers through pins at top and bottom and held to the towers by heavy metal straps, 17 in. wide and 1¼ in. thick, backed by jacks that would later be used to insure proper alignment of the two halves of the span when joined at mid-river.

• **Bridge under**—Meanwhile, the contractor began work on cutting out the two 29 x 29 x 6 ft counterweights, with a total weight of more than 600 tons, which were an integral part of the old bascule.

Before he could do this, however, Koch had to make provision for another circumstance foreseen in the engineering specifications: The old bascule had to continue to carry rail traffic, even without its counterweights, until it could be removed and replaced. And removal of counterweights would reverse some of the stresses in the structure and thus call for temporary—but expensive—reinforcement of the span.

To solve the dual problems of supporting the old span and of rolling it out of position when the new one was ready to go into place, Koch now erected a third structure. This was a relatively light box truss underneath the old bascule, supported on steel cantilever arms projecting to the south of the existing bridge and carried on specially prepared foundations. The new structure was 155 ft long, 20 ft wide, built of structural steel members and assembled on the job. It rested on the cantilever arms atop a nest of rollers that would later be used to roll out the unwanted span. It picked up the bascule span at two panel points to provide support in the interim.

This done, work could start on the old concrete counterweights—and more trouble developed immediately. The counterweights had been built by casting concrete in three separate steel boxes, one atop the other, and part of the aggregate used consisted of pig iron bars, apparently dumped into the outer ends of the boxes indiscriminately.

Koch had first to strip off the steel casings and attack the huge chunks of concrete with jackhammers—which hung up, dulled and refused to work as soon as they struck the iron bars.

But it was determined that the pig iron was concentrated at the outer end of the counterweights, and by working from the inner end, workmen could literally "peel out" the iron. The counterweights came down in three weeks.

• **Bridge over**—With the river closed, four months—until April 1, 1957—remained in which to complete erection of the lift span, install all machinery, new counterweights and the like and get the old bridge out of the way.

Despite bitter cold, snow and icing conditions on the steel, the new span was completed and ready to be lowered into place on the new piers by March 4, 1957. On that day the new bridge had been tested; the old counterweights, machinery house and control house had been removed, new approach steel and tracks were in place.

Train service was halted at 9:30 a.m. Work crews moved in fast, burned away rails and other points connecting the old span with the rest of the bridge. Jacks acting on the truss underneath the old span then were brought into play to lift the 500 ton bascule 2½ inches—clear of obstructions. Shims were inserted and the bascule welded to the truss.

With the rollers on the cantilever arms in place, cables connected to two stationary engines that powered the erection derricks began to pull the old span out; moving it—in a matter of two hours from the start of the pulling operation—38 ft to the south, well clear of the structure.

Wrecking crews cleared remaining obstructions from the gap and from atop the old piers. Then the new span came down smoothly into place, was locked into position, the eastbound track connected and the railroad was ready to operate.

The entire operation was completed in 27 hours.

Still remaining to be completed—under another contract—is demolition of the old piers and installing new fendering at the new bulkhead line for the new piers.

Hebert Davidson was in charge of the project for the consulting engineer, assisted by Eugene Tulich. Ralph Bartley was resident engineer for the consultant on the job. H. F. Whitmore is chief engineer, R. T. Blewitt, bridge engineer, and E. F. Manley, project engineer for the railroad company.

BRI Conference Will Study Plastic Roof Construction

The Building Research Institute Plastic Study Group meeting, scheduled for Sept. 17 and 18 at Washington University in St. Louis, will discuss plastics used in roof construction.

Joseph R. Passonneau, dean of the Washington University school of architecture, will give a special report on the use of plastic materials in the construction of the entire roof structure. D. R. Keuspert of du Pont will announce a new roof construction method involving precoating of roof surfacing on prefabricated roof panels.

How would you re-floor a bridge while maintaining traffic?

To repair a section of a failing bridge floor without interfering with traffic, Armco Bridge Plank was installed in one lane at a time. Note traffic in other lane.

Illinois Did It Quickly with Armco Bridge Plank on Busy Route 66

A section of the floor of a bridge, carrying Route 66 across the Des Plaines River in Illinois, was failing. Exposed reinforcing created a serious traffic hazard. A new floor was required, but the big problem facing engineers was the heavy traffic over the bridge. A detour was not practical.

The solution was to re-floor one lane at a time with Armco Bridge Plank. As the old floor was removed from one lane, Armco Bridge Plank was set across the stringers to the halfway mark and welded in place. The floor was then finished with an asphaltic concrete.

When one lane was completed and opened to traffic, work began on the other. Traffic was maintained at all times. Only five days were required to complete the whole job.

• • • • • • •

Armco Bridge Plank features 2-inch-deep trapezoidal corrugations, and is available in 7-, 10- and 12-gage steel. Plank widths are 18 and 24 inches; almost any length.

Bridge Plank is one of more than 30 Armco products for industrial, municipal, railway, highway and similar applications. Made of steel, they are economical, easy to install. Tell us what you need. We'll send complete information. Armco Drainage & Metal Products, Inc., 5377 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

Removing section of failing floor on Des Plaines River bridge.

Job completed. Note smooth, uniform surface of repaired floor.

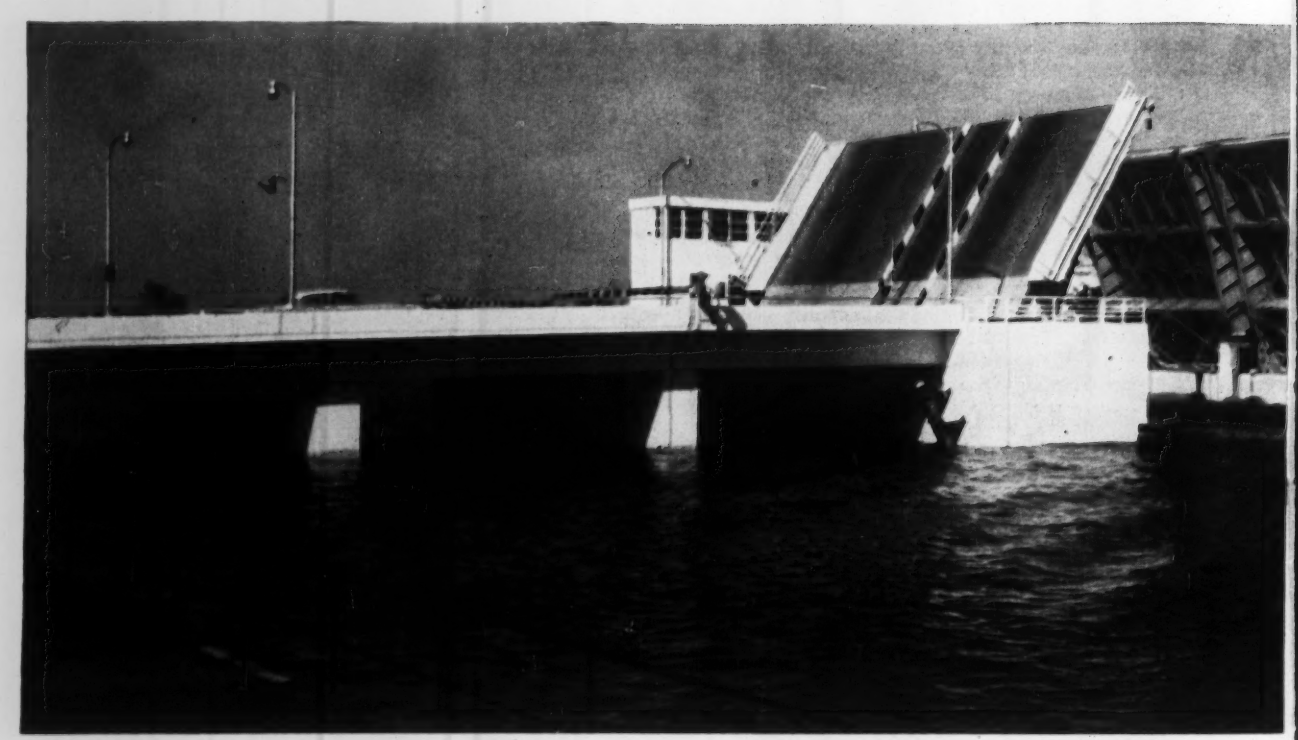
ARMCO CONSTRUCTION PRODUCTS

ARMCO®

LOW BRIDGE

OPERATING AND MAINTENANCE COSTS WITH WESTINGHOUSE

Westinghouse-powered 63rd Street bridge, Miami, Fla.



A lot of traffic passes through and over the 63rd Street bridge at Miami, Fla. Smooth and rapid operation of the double bascule leaves is a must. Miami also considers it a must to keep operating costs and maintenance at a minimum. Performance and low cost are insured by the all-Westinghouse coordinated electrical system. Power distribution, control system and motors are engineered as a package, to fit the particular requirements of bridge operation. This is an important benefit in the Westinghouse policy of providing specialized know-how to assist bridge planners and contractors.

Consulting engineers: Palmer and Baker, Mobile, Ala. Electrical contractor: Astor Electric Service, Miami, and general contractors: Poston Bridge and Iron Works and George E. Runnel, Inc., Miami. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-94072

YOU CAN BE SURE...IF IT'S

Westinghouse

(*Top*) Complete control of lock drive, warning signals and barriers on the busy bridge is centralized on this Westinghouse desk.

(*Middle*) Reliable Westinghouse CIP wound rotor motors power the lifting mechanism for each side of the broad 63rd Street bridge. Their operation is coordinated on the Westinghouse control desk.

(*Left*) Westinghouse special bridge type control switchboard.

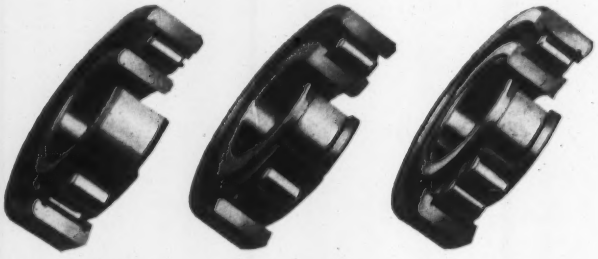
Now...load rate your bearings at higher values with Tru-Rol CROWNED ROLLERS

Greater capacity . . . longer life . . . or a precisely balanced gain of *both* factors. That is the choice offered you by the "crowned" rollers of Tru-Rol bearings.

By finish grinding a carefully selected crown radius on roller ends, Rollway relieves high stress areas, insures uniform distribution of load over the entire length of the roller. Rollers can take heavier loads without excessive end-fatigue, and are less subject to the effect of slight misalignment or deflection.

The result is load rating at higher values for greater capacity, longer service life . . . or both. If this choice interests you, why not write for the complete story. Rollway Bearing Co., Inc., Syracuse, N. Y.

Tru-Rol Bearings with crowned rollers are available in 3 types

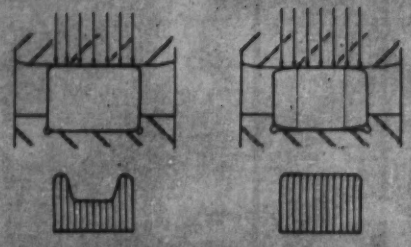


Stamped Steel Retainer with Guide Lips

Segmented Steel Retainer

Full Roller

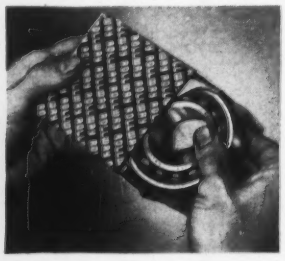
Comparative Stress Patterns under Uniform Loads for Straight and Crowned Cylindrical Rollers



Stress pattern for a straight cylindrical roller under load. Note uneven end-loading.

Stress pattern for crowned roller under load. Crowning radius is exaggerated for clarity.

● Rollway engineering service is available to help you select exactly the right bearings for your needs. Write us.



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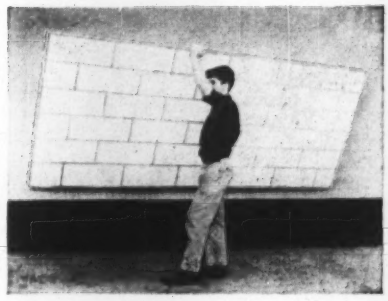
ROLLWAY REPLACEMENT BEARINGS are available through authorized distributors in principal cities. Consult the yellow pages of your telephone directory — under "Bearings".

ENGINEERING OFFICES: Syracuse • Boston • Chicago • Detroit • Toronto • Pittsburgh • Cleveland • Milwaukee • Seattle • Houston • Philadelphia • Los Angeles • San Francisco



Curtain Wall Panels Faced With Translucent Plastic

Glass-fiber reinforced plastic sheets are bonded to both sides of an aluminum grid in a new lightweight, translucent curtain-wall panel.

Produced by the Kalwall Corp., the panels are said to be resistant to shattering, crazing, fading, impact and vibration. The panels can be used for both exterior and interior wall and roof surfaces.

The aluminum grid used in the panel acts as a load-bearing component and provides a solid metal edge banding to fasten the panel to its supporting members. This fastening is done by a flush internal joint system that allows for thermal dimensional changes and simplifies erection of the curtain-wall panels.

The translucent panels come in white, crystal, green, blue, rose and yellow colors. They are available in four sizes: 4 x 8 ft, 4 x 10 ft, 4 x 12, and 4 x 20 ft; and in two thicknesses: 1⅛ and 2¾ in.

Non-standard sizes are manufactured upon request. KALWALL CORP., MANCHESTER, N. H.

Air Pump Line Designed For Low Lift Applications

Walker Process has designed a line of air lift pumps for low lift pumping applications such as used in sewage and water treatment plants.

They are offered in sizes from 3 to 16 in. with outputs ranging from 60 to 1,650 gpm.

The manufacturer claims that the special low lift units operate more efficiently than centrifugal pumps against heads of less than 4 ft.; that the curves cross at about 4½ ft head.

The new pump departs somewhat from typical high lift designs. Tradenamed the Airopump, it features a central radial type diffuser to introduce air into the updraft tube. Air is brought to the diffuser via a central aluminum tube coupled to the air main by flexible hose, this arrangement offering flexibility of operation.

Above the diffuser are spiral vanes that are designed to eliminate coalescence and to continue homogenization of the air-water mixture. The new unit also utilizes an aluminum self-valving splash plate atop the rising liquid surface as deflector to increase efficiency of the lift by damping it at the proper point.

In specifying pump dimensions, the manufacturer advises engineers to call for a submergence of at least 70% (of submerged portion plus lift plus friction head) and preferably 80%. Efficiency of the Airopump is said to fall off very sharply below 70% submergence. Bulletin 22S7548 is available, and includes drawings, selection charts, operating curves and design calculations. —WALKER PROCESS EQUIPMENT, INC., 840 N. RUSSELL, AURORA, ILL.

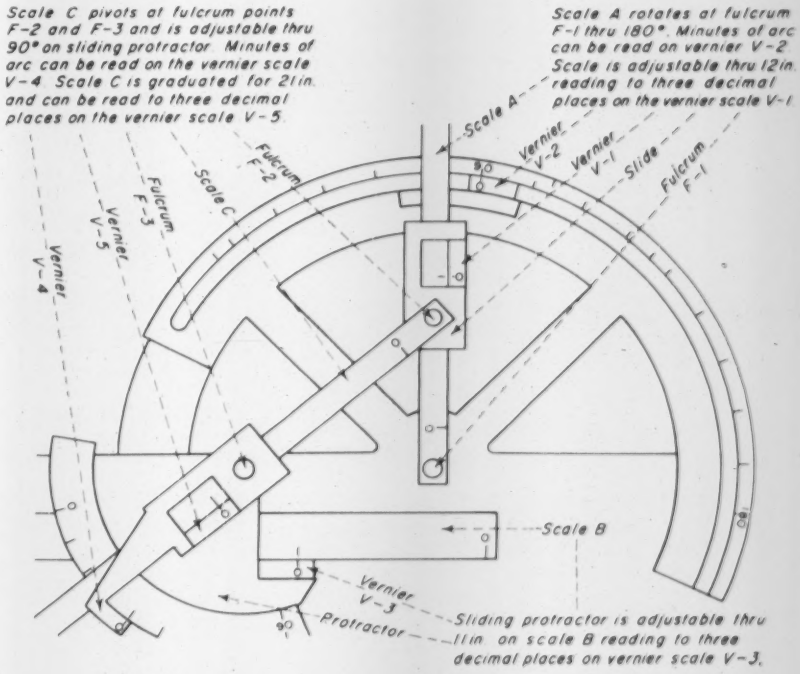
Trencher Is Attachment For I-H Utility Tractor

An Everett high-capacity, vertical bucket-type trencher, designed by Earth Equipment Corp., is available for use with International Harvester's Model 350 Utility Tractor.

Earth Equipment Corp. introduced its first trencher—the Model S Everett—in 1946, for use with Ford, Ferguson and Massey-Harris tractors. These units continue in production.

The new trencher is equipped with hydraulic controls that permit disposal of dirt on either side of the trench. Capacity of the new trencher is estimated at 9 ft per minute. Maximum digging depth is 4 ft, cutting width 12 in. standard and 14-16-18 in. when attachments are used. EARTH EQUIPMENT CORP., 2036 SACRAMENTO ST., LOS ANGELES 21, CALIF.

(New Products continued on page 58)


Scale C pivots at fulcrum points F-2 and F-3 and is adjustable thru 90° on sliding protractor. Minutes of arc can be read on the vernier scale V-4. Scale C is graduated for 2 in. and can be read to three decimal places on the vernier scale V-5.
Scale A rotates at fulcrum F-1 thru 180°. Minutes of arc can be read on vernier V-2. Scale is adjustable thru 12 in. reading to three decimal places on the vernier scale V-1.
Scale A
Vernier V-2
Vernier V-1
Slide
Fulcrum F-1
Fulcrum F-2
Scale C
Fulcrum F-3
Vernier V-5
Vernier V-4
Scale B
Vernier V-3
Protractor
90°
Sliding protractor is adjustable thru 11 in. on scale B reading to three decimal places on vernier scale V-3.

Triangles Solved Directly With New Device

Unknown angles and sides of a triangle are read directly from vernier scales after simply forming the triangle with a new instrument known as the Trigulator. With a model for the structural steel field, linear scales can be read to ⅛ in. in 100 ft and angular scales can be read to 1 min.

Operation is indicated in the accompanying sketch. Given two sides and an angle, a triangle can be solved in less than a minute compared to perhaps 15 or 20 minutes employing trigonometric formulas says the manufacturer. —FITCH INSTRUMENTS, INC., 1480 E. HIGH ST., POTTSTOWN, PA.

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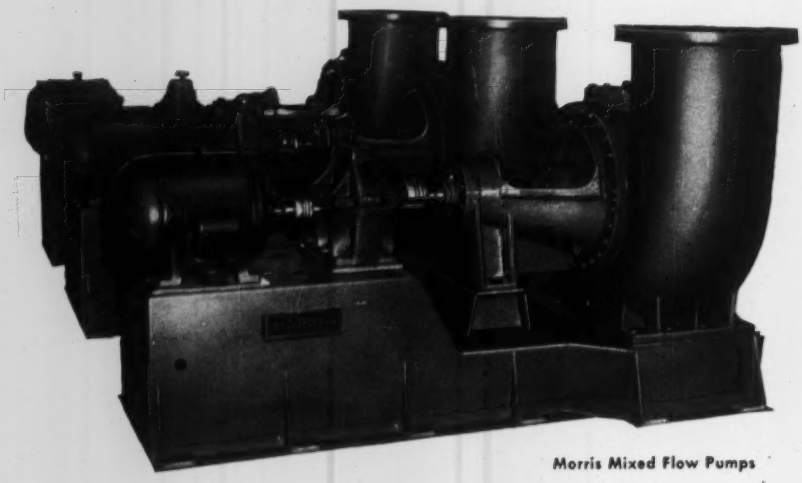
Conservatively Rated Capacities, Plus Margins of Safety to Handle Normal Overloads in Year 'Round Operation



Morris Mixed Flow Pumps

There is a Morris Pump That Suits Your Job Better

Morris pumps have that built-in margin of safety that assures you peak performance in your pumping operation

Rugged durability permits continuous operation even under the most strenuous working conditions. Modern design and engineering assure freedom from mechanical difficulties. The Morris pump operates with a minimum of attention . . . lowers maintenance costs . . . can be quickly dismantled for inspection . . . avoids lengthy lay-up time. For heavy duty pumping . . . specify Morris.

The vast experience of Morris sales engineers enables them to recommend the Morris Pump best suited for your particular Job. For more complete information write today.

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. . . New Products

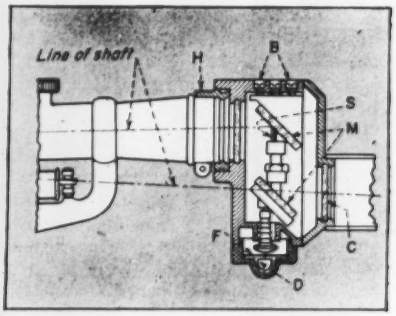
Self-Leveling Attachment Keeps Line of Sight True

A self-leveling attachment, said to provide and maintain a level or horizontal line of sight, is offered to eliminate exacting adjusting of surveying instruments.

An adapter permits use of the instrument with any make level or transit. Attached to the objective end of the telescope, the attachment keeps to the horizontal and is designed to be unaffected by vibrations and similar interferences.

The manufacturer claims accuracy to within 1% of angle between true horizontal and telescope sight line, even when the bubble level of the surveying instrument is two divisions off center. Price is about $75. DAVID WHITE INSTRUMENT CO., 2051 N. 19TH ST., MILWAUKEE, WIS.

. . . How it works

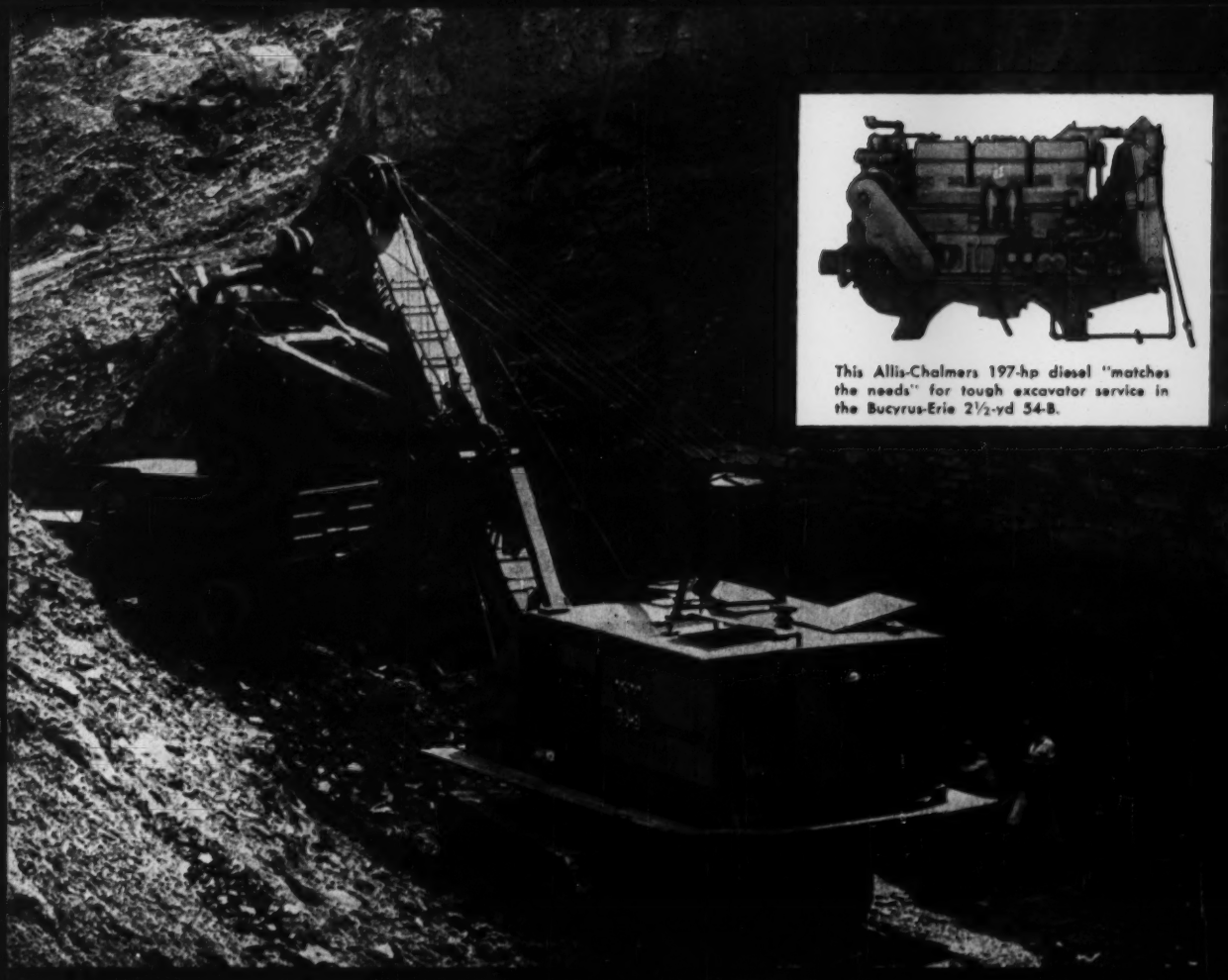


The line of sight strikes the mirrors (M) and is reflected through the telescope. The lower mirror is supported by a fine steel spring (S). This spring has been sized so that its strength will only allow the lower mirror to travel through half of the angle that the telescope and the body of the leveling device have been tipped. Since light reflects at the same angle that it strikes the mirror, this half angle is multiplied by two; therefore, the line of sight remains horizontal, regardless of the angle of the telescope.

The working parts of the attachment are protected by two cover glasses (C), to eliminate dust and moisture.

To retard the pendulum action of the lower mirror, a heavy bodied silicone fluid (F) is used. A dampening blade (D) moves in this fluid to eliminate swinging.

The attachment may be installed on any telescope within the range of the adapter (H). Adapting it to any telescope is simple in that adjusting screws (B) are adjusted so that the viewer sees a point 1⅛ in. below a point seen with a properly adjusted level.



This Allis-Chalmers 197-hp diesel "matches the needs" for tough excavator service in the Bucyrus-Erie 2½-yd 54-B.

ALLIS-CHALMERS ENGINES MATCH YOUR NEEDS

MATCH YOUR PERFORMANCE STANDARDS — with Allis-Chalmers high-torque, high-usable-horsepower engines that *stay on the job.*

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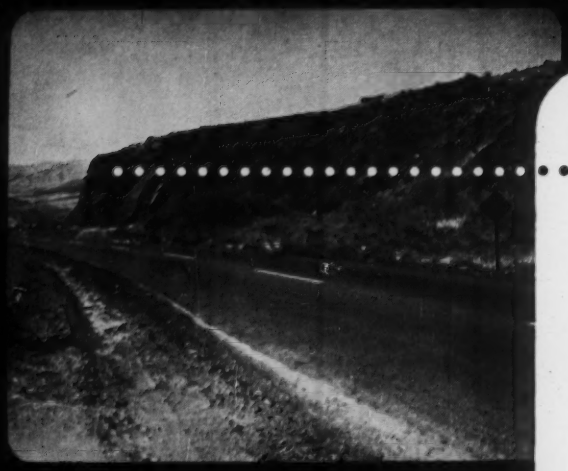
See your Allis-Chalmers dealer for full information on engine power and service matched to your needs. Allis-Chalmers, Buda Division, Milwaukee 1, Wisconsin.

8C-8A

ALLIS-CHALMERS *Engineering in Action*



For years, motorists met this rocky point near Lewiston, Idaho. The job: Remove the point, straighten the route, build four lanes.

. . . . . "Pulling" this rocky point was a push-over the ROCKMASTER® way!

There goes 30,000 solid yards of medium hard diced basalt, breaking under complete control—the Atlas ROCKMASTER way!

Initiation from both ends "pulled" the shot parallel to the road with scarcely a rock out of place. The confined blast formed a well-broken, easy-to-shovel pile.

Art Sabin, powder man and rock foreman for the Duffy Reed Construction Co., Twin Falls, Idaho, used a carefully planned combination of Atlas explosives and ROCKMASTER Millisecond Delay methods to achieve this near-perfect blast. The sequence photos tell the story.

335 holes and 22,250 lbs. of Atlas explosives were used in a ROCKMASTER progressive pattern, working outward from the center to "pull" the blasted rock into a pile along the existing curve of the road. The throw was so accurate, fragmentation so ideal for quick shoveling, that normal traffic resumed within hours.

Your Atlas representative can help you get best results in your specific blasting problem. It will pay you to discuss your next job with him. And write for Atlas' informative newsletter, "Better Blasting," describing latest methods and materials.

GOT A PUBLIC RELATIONS PROBLEM? The new Atlas movie, "We're Blasting Near You" can help you prove to PTA's, civic associations and service clubs that modern blasting techniques enable you to be a "good neighbor" through safer, quieter, low-vibration blasts. Get the facts today.

EXPLOSIVES DIVISION

ATLAS POWDER COMPANY

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Up Here They Built a New Roof, but . . .

Down Below It Was Business as Usual

When acid rot finally forced replacement of the roof of Brazil's Klabin paper mill, the biggest in South America, it seemed for a time that the usual round-the-clock seven-day-a-week manufacturing schedule might have to be interrupted. Several construction firms declined to attempt the job without shutdowns.

Then one of Klabin's own engineers, Andre Denis, devised a procedure for making the alterations with no production losses.

Following the Denis plan, which was developed with the aid of Newman Engineers, of Sao Paulo, a contractor, Sydney Manierio Co., extended existing columns upward, erected a new roof and dismantled the old one. During the construction period, the mill produced daily its usual output—250 tons of paper and cellulose.

ROOF FRAMING consists of trussed arches and purlins made of tubular steel sections. Later the steel was encased in concrete to protect it against acid condensate.

In plan the mill is a 374 x 151 ft rectangle, divided into three sections—52, 47 and 52 ft wide—that run the full length of the building. Construction in each of the three sections was handled separately, but the method was the same throughout.

For the respective purposes of erecting the new roof and demolishing the old, the contractor constructed working platforms above and below the existing roof.

The lower platform was mounted on the permanent rails of the mill's overhead beam hoist. The upper was mounted on rollers supported by concrete beams framed between the extended columns.

Additional rolling falsework, resting on concrete beams framed between the tops of the extended columns, supported the new roof framing during erection.

The new framing, welded steel encased in concrete, comprises two-hinged, tied, trussed arches, 20 ft c-c, and trussed purlins—all constructed of tubular steel.

The purlins support wood joists and a wood-plank deck, topped with a nine-ply asphalt-and-glass-fiber builtup roof about ¼ in. thick. The underside of the new roof is covered with wire mesh and plaster.

The steel framing, fabricated in Klabin's own shops, was assembled in the air in one-bay units.

Arches were raised in halves to the falsework and bolted together to form complete spans. Then purlins were welded between arch pairs.

The first bay, when completed, was trundled on the rolling falsework to the end of the building. Then two more arches and the intervening purlins (third bay) were assembled and rolled to a position 20 ft from the near arch of the first pair.

The space between the two assemblies (second bay) was spanned later by purlins. The remaining arches and purlins were installed similarly.

After erection, the steel members were encased in concrete to prevent damage by acid condensate.

As a safety measure for both men and machinery, all workmen aloft kept their tools tied to them. The job was completed without a single accident.

The project took a little more than a year to finish and cost about $150,000.

The job required 90 tons of steel and 700 cu yd of concrete.

(*International continued on page 62*)

pumping something special?

check these special features

*available with Yeomans Vertical Wet Pit Centrifugal Pumps**

sand glass particles and other abrasives	*Lubri-Vac*® reduces by 95% the failure of bearings due to scoring by abrasive particles. Lubri-Vac constantly flushes bearings with lubricant, keeps foreign matter away. (An exclusive Yeomans feature included on all heavy-duty pumps.)
ash fly ash cinders bits of coal corn foots and other solids contained in drainage	A cradle pump with protective sleeves to protect shaft. Special manganese steel parts. Yeomans pumps including these features will give long life under the most severe abrasive conditions.
potassium cyanide sulphuric acid jet fuel melted naphthalene and other toxic or volatile liquids	Shaft seal is not under liquid pressure with Yeomans Vertical Wet Pit Pumps. This feature eliminates the leakage hazard which is present with horizontal pumps.
molten phosphorous acetic acid hydrochloric acid black liquor and other corrosive liquids	Whatever the corrosive and/or abrasive liquid to be pumped—Yeomans has special ferrous and non-ferrous alloy parts to handle it.

*Vertical Wet Pit Centrifugal Pumps save floor space, require no priming —no costly liquid leaks as stuffing boxes are not under liquid pressure. Capacity range from 5 g.p.m. to 10,000 g.p.m.

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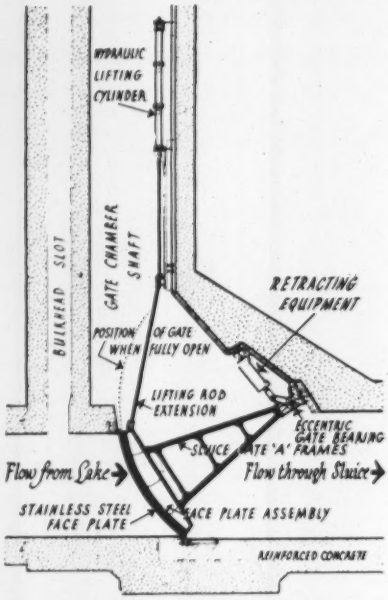

Novel Sluice Gates

Radial units under high head are retractable to permit easy movement

The first radial sluice gates under high head in New Zealand pivot on an eccentric shaft which enables them to be moved easily and with a minimum of wear on the seals. The eccentric shaft allows the entire gate to be withdrawn about ½ in. from its seating before being rotated.

Now being installed in sluices leading from Lake Hawea in South Island, the gates—four of them—will regulate the lake level in accordance with electric power demand. Thus, they will be adjusted several times a week.

Unique operation of the gates requires considerable accuracy in their fabrication. Gate and rubber seal must be mated within a tolerance of $\frac{1}{64}$ in.

Face of each gate, of stainless steel plate, is rolled to a circular segment measuring 10 ft wide and 14 ft high. To be under a maximum 80 ft head of water, each gate must withstand a maximum water load of 310 tons.

Immediately upstream of each gate will be an emergency stoplog gate, with a similar structure at sluice outlet.

The novel gate installation has been designed by New Zealand's Ministry of Work, under C. W. O. Turner, chief engineer.

Gates were put together in the department's workshops from parts fabricated by several private firms.

(*International continued on page 64*)

for greater structural values

THE GREAT SOUTHERN SHOPPERS' MART.
C. MELVIN FRANK, A. I. A., ARCHITECT;
DON M. CASTO, SR., & DON M. CASTO, JR.,
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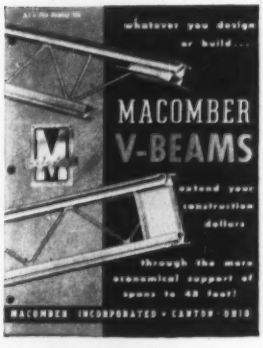
THE MACOMBER V-BEAM IS A MORE ECONOMICAL FLOOR AND ROOF FRAMING MEMBER WITH A GREATER MAXIMUM LOAD FACTOR.


whatever you design or build...
MACOMBER
V-BEAMS
extend your construction dollars
through the more economical support of spans to 48 feet!
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The Macomber V-BEAM goes right on establishing new friends, new sales records wherever Architects and Engineers design this rigid structural unit into a roof or floor system.

For here is reserve capacity and structural stamina unequaled in structural framing members. The wide flange V-Section with the extra turn-down along the outside edges provides exceptional lateral rigidity in the top and bottom chords.

The V-BEAM Catalog will enable you to design these improved structural values into your jobs at bid winning prices. One trial will convince any structural engineer!

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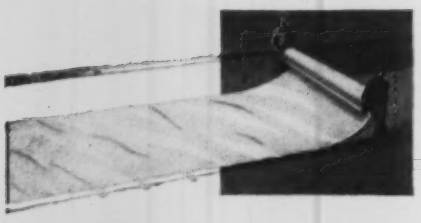
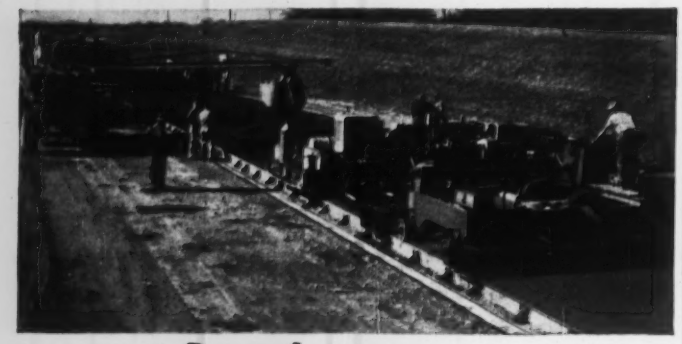


FOR BETTER ROAD BUILDING

It's not enough when laying concrete to have the proper cement-sand-aggregate-water mixture. As important for achieving maximum hardness and strength are proper curing, the prevention of too fast a moisture loss and complete protection against weather during the critical setting stage.

That's where Durethene® polyethylene film fits into your road building program. Durethene film is a superior vapor barrier that stops downward moisture loss. And it's an ideal "curing blanket" for preventing too rapid an evaporation loss after pouring. It's a low cost, reuseable covering to protect fresh concrete from sudden showers. It's easy to handle—1000 sq. ft. of 4 mil film weighs less than 20 lbs.

Check Durethene polyethylene film today. See how this rot-proof, moisture-proof, acid and alkali resistant film can save you time, money and labor, as well as result in a superior concrete for road building. Also, check its use for temporary shelters, lightweight, low cost tarpaulins and water-proof equipment covers.



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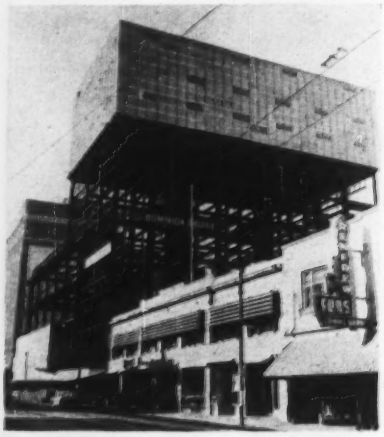


Priority on Top Story Speeds Work on TV Net

Needed in a hurry to permit installation of TV equipment, the upper floors and roof of the 8 story Alberta Government Telephones building, in Calgary, Alberta, were constructed as soon as the frame of the building was ready.

Construction of a 95 ft microwave tower on the roof already has begun. And by the time the Trans-Canada microwave system reaches Calgary this fall, television terminal and switching equipment must be installed on the upper four floors.

The project will cost $11 million, including a substantial sum for communications equipment.

Nasser Revives Talk On Aswan High Dam

Aswan High Dam on the Nile River is again being talked about as Egyptian newspapers quote Colonel Nasser as saying that with Suez Canal tolls now being collected, Egypt will be able to finance the dam without foreign assistance.

Colonel Nasser also told a visiting Japanese delegation that he would seek technical assistance from Asian states such as Japan, and not depend on the West any longer.

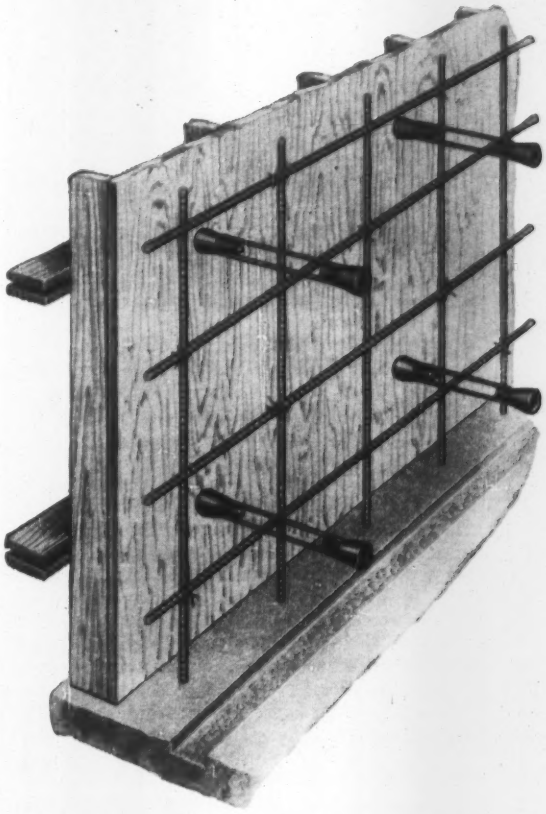
According to Salah Shazli, director-general of the Cairo Electricity Administration, Egypt has been seriously considering a less costly alternative—a reservoir at Wadi Rayan depression in the desert east of the Nile River, 140 miles south of Cairo. First advanced five years ago, the project was planned as a big lake with a 78 ft fall intended to produce 500,000 to 600,000 kw, as well as to irrigate a large desert area. Cost was estimated at about $285 million, whereas Aswan is set at $1.2 billion.

Threaded CONES CUT FORM COSTS

SUPERIOR

Cone-Fast COIL TIES

Pat. No. 2,335,338



May be used with wood, combination wood and steel, and all steel form work for bridge piers and abutments, retaining walls, filtration and sewage disposal plants, and other engineering projects. Illustration above shows assemblies in place prior to erection of opposite form.

Patented Threaded Cone Permits Extra Fast Erection of Forms!

Form erection crews can maintain extra fast schedules when using the Superior *Cone-Fast* Coil Tie Assembly because of a patented threaded feature whereby less than 2 turns of the Cone hold it securely to the Coil Tie. Designed especially for jobs where large panel forms are used for thin walls that do not permit a man inside forms, these *Threaded* Cones cannot be knocked off the Coil Ties when the opposing form is being applied. Here's an additional advantage . . . units may be bench assembled with the assurance that they will arrive at the destination point intact! Stripping is easier too . . . as the Threaded Coil Cones back out of the wall with a cone wrench.

Cone-Fast Coil Ties with *Threaded* Coil Cones are supplied for ½" to 1¼" Coil Bolts with safe load capacities from 5,000 to 36,000 lbs. Working parts (Cones and Bolts) are returnable for credit.

When specifications require the tie metal to be 1" or 2" back of the wall face, Superior *Standard* Coil Ties are available.

For complete details request a copy of our new Catalog 600.

SUPERIOR CONCRETE ACCESSORIES, INC.

9301 King St., Franklin Park, Ill. (A Suburb of Chicago)

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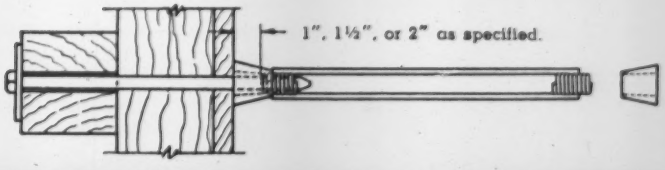

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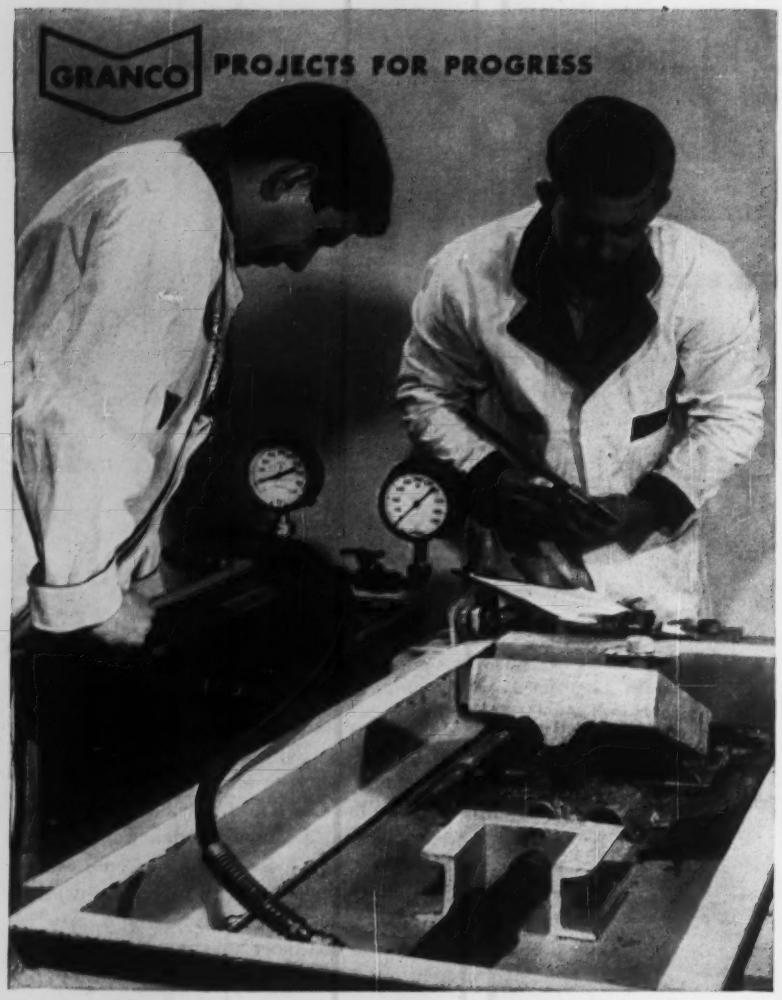

THEY "BLOW UP" FLOORS TO MAKE BUILDINGS SAFER

Granco "Weld-Shear" test puts failure loads on a test-floor section. Result: Safer design standards for the construction industry.

When heavy office equipment loads a floor system, concrete in the system tends to separate from . . . and slide horizontally along . . . the face of reinforcing steel. How can you provide for this shearing action? Granco Steel Products Co. helps by establishing dependable safety factors as a guide in structural design. In the test, above, Granco engineers are determining accurate safety factors for Cofar combined-form-and-reinforcing units by casting actual samples of a Cofar floor system. Hydraulic jacks apply failure loads on the system until concrete separates from and slides along the Cofar unit. By charting the exact amount of pressure required to cause this shearing, Granco engineers are able to accurately determine safety factors for their own product, Cofar.

Like to see results of this test? Send for free copy of Granco's "Weld-Shear" data today —another tangible example of continuing Granco research that leads to better products for the construction industry.

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Books

Engineer Shortage

THE DEMAND AND SUPPLY OF SCIENTIFIC PERSONNEL—by David M. Blank and George J. Stigler. 200 pp. National Bureau of Economic Research, Inc., New York, N. Y. $4

This book was intended by its authors to deal with the methodology of determining supply and demand of engineers and scientists. It wound up rather as the authors' analysis of the recent supply-demand picture—up to and including 1955.

The authors dispose of two current analyses of supply and demand.

The Bureau of Labor Statistics method for predicting demand is an extrapolation based on the predicted future labor force and the ratio of engineers to workers in the various industries.

The Engineers Joint Council method of gaging demand has been by questionnaires to employers, asking expected net additions to their engineering staffs.

As to the first, the authors question regularity of the ratios of engineers to labor force. Statistical control of the second method is questioned by the authors.

For their own contribution to the methodology, the authors don't look much beyond earnings as an indicator of supply-demand imbalance.

Has there been a shortage?

They doubt it. And they base their conclusion mainly on salary data, although such data are not strongly set forth in this book.

The authors propose that a shortage exists when the supply does not meet demand "at the salaries paid in the recent past." They then set out to find if a shortage has existed in recent decades by studying apparent trends in salaries.

Their figures show an index of median engineering salaries compared to earnings of doctors, dentists, lawyers, professors and wage earners in manufacturing from 1929 to 1954. The index (1929 = 100) has gone to less than 100 for all these comparisons over the period of years, they find.

They conclude that although demand for engineers has grown rapidly over the years, supply has grown even more rapidly, resulting in a downward drift of engineers' salaries in relation to earnings of other workers and professionals.

Therefore, they say, there has been no general shortage of engineers, up to 1955.

The authors' research was financed by the National Science Foundation.

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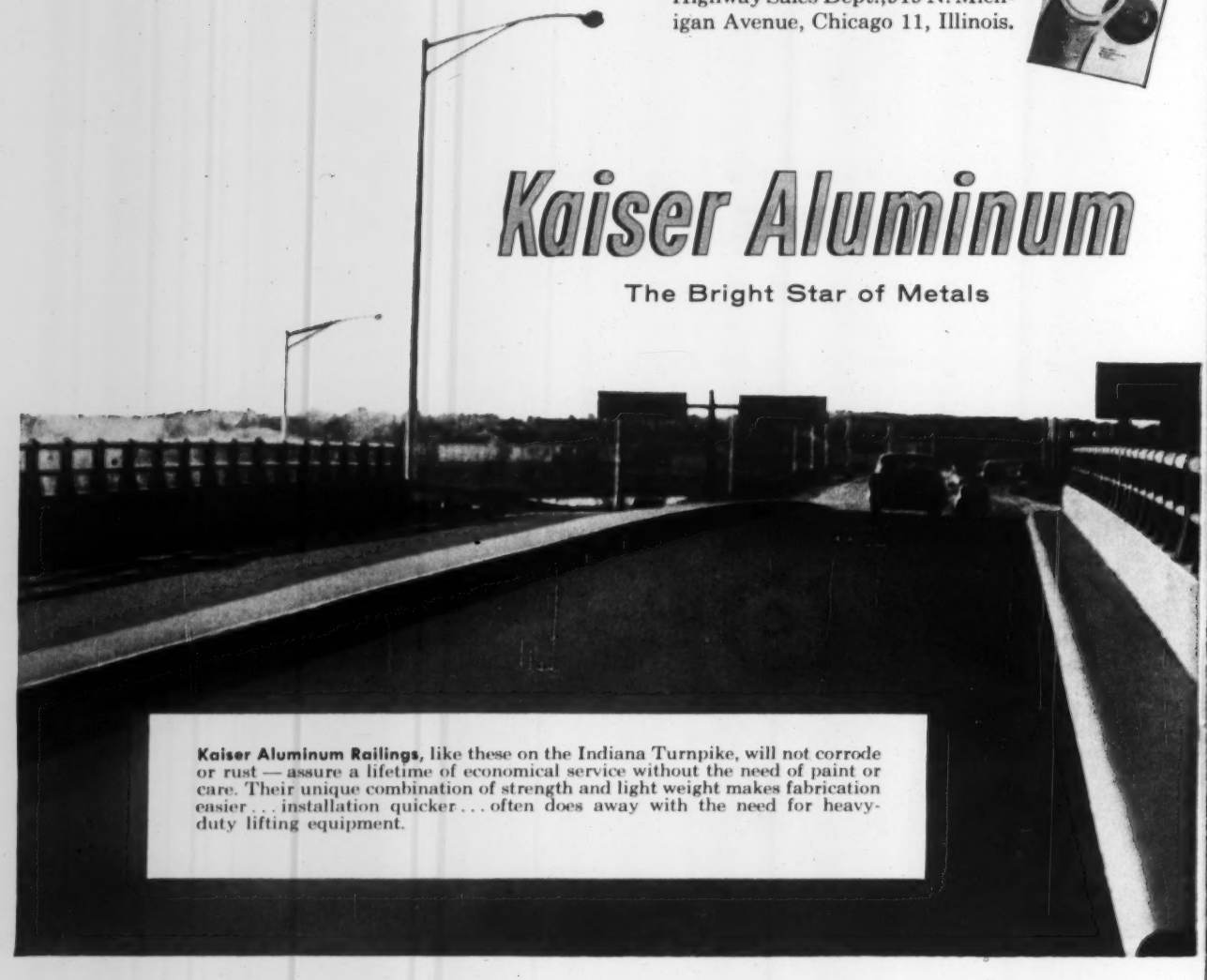

Kaiser Aluminum Railings, like these on the Indiana Turnpike, will not corrode or rust — assure a lifetime of economical service without the need of paint or care. Their unique combination of strength and light weight makes fabrication easier . . . installation quicker . . . often does away with the need for heavy-duty lifting equipment.

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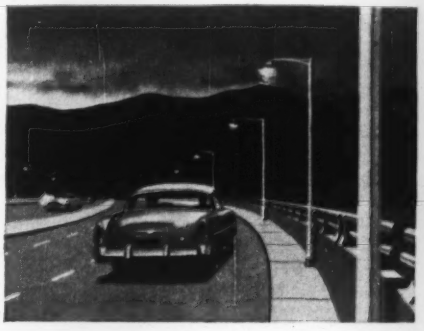

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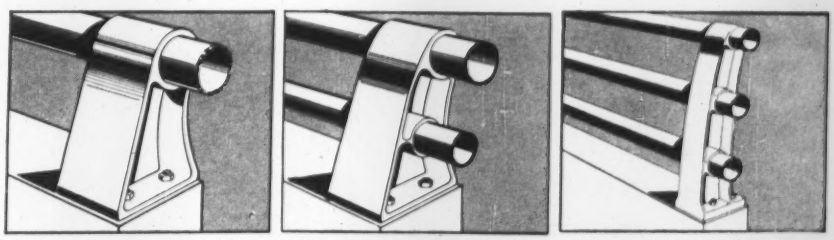

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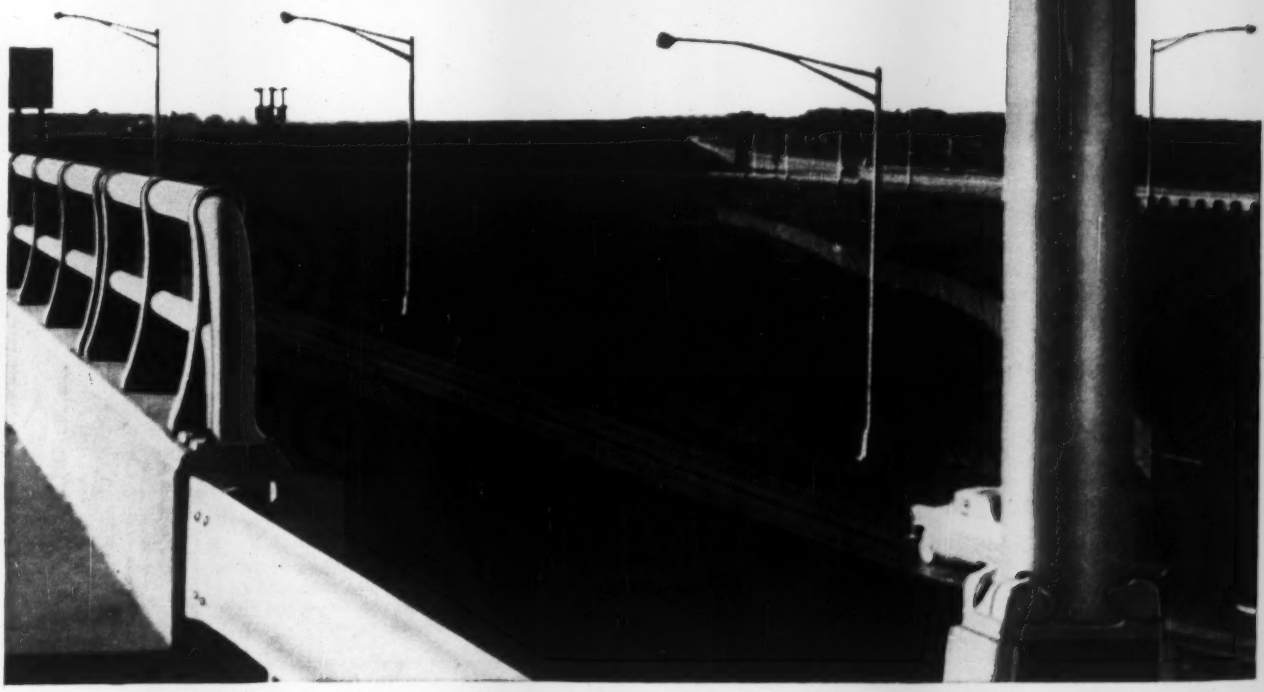

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An international conference of RILEM . . .

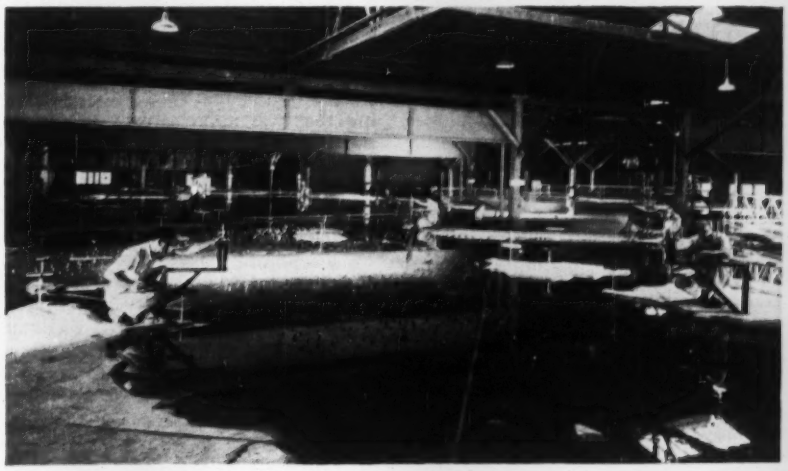
Researchers Examine Cracking in Concrete

Stockholm—Crack formation and its consequences in reinforced concrete was the subject of an international conference held here, June 27-29 attended by 200 engineers and scientists from 25 countries. The fact that such a detail of concrete technology should attract so much attention seems to reflect the keen interest in Europe in the use of very high working stresses in both steel and concrete. It is also related to the steadily increasing use of "ultimate load design" with reinforced concrete.

The conference was sponsored by the International Union of Testing and Research Laboratories for Materials and Structure, which goes by the much shorter name of RILEM. Formed in 1947, it now has over 400 individual members representing 250 research organizations in 37 countries, and has its headquarters at 12 rue Brancion, Paris, France with R.L'Hermite as secretary general. The Stockholm conference was organized and conducted under the leadership of Georg Westlund, director of the Swedish Cement and Concrete Institute. The 44 papers presented together with the discussions will be available in three volumes from the Institute, address: Drottn. Kristinas Vag. 26, Stockholm, 70, Sweden.

Papers and discussion at the conference ranged from a three dimensional mathematical analysis of crack formation, through a consideration of what exactly is meant by a "hair-crack", to a critical analysis of the actual cracks found and measured in large groups of structures in Holland and France. Consensus of the meeting was that, although many aspects of strain cracking in reinforced concrete are not yet fully understood, enough is known to suggest that such cracks are not in general as injurious as are those which are created by corrosion (usually originating with porous concrete) or by shrinkage. Again, emphasis was placed upon the necessity of obtaining concrete of the best possible quality.

• **Mathematical analysis**—Prof. Waclaw Olszak (Warsaw, Poland) presented to



Model to Give Bay Problem Answers

A working model of San Francisco Bay is now in operation in Sausalito, Calif., as part of a $2.5 million study of the bay authorized by the federal government. The $400,000 molded lightweight concrete model, built by the Corps of Engineers, is to a horizontal scale of 1:1,000 and vertical scale of 1:100. It covers an acre. It duplicates tides, salinity content of water, current velocities and shoaling of the bay.

The model will be used to study various salt-water barriers proposed for the bay to see what effect they have on fresh-water flows, navigation, flood control and tides. Also, a study will be made of movement of silt in the bay in an effort to cut the $2 million a year bill for maintenance dredging.

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the meeting the first version in English of a mathematical treatment he has developed to explain the formation of cracks in reinforced concrete members under load. Its novelty rests in its three dimensional character.

Other more simple two-dimensional theories of crack formation were also presented and discussed. Some of these relate to the width of crack which may be anticipated and some to the probable spacing of cracks along a beam, the two being inter-related.

The application of the leading theories to the actual results of 150 beam tests was analyzed by Prof. H. Rusch (Technische Hochschule, Munich). By plotting values for the difference between observed and theoretical values for crack spacing, divided by observed values, Professor Rusch was able to show that all the main theories give results usually with an accuracy of 70%. A formula developed in his own laboratory was claimed to have a mean accuracy of about 95%.

• **Width of cracks**—There was useful discussion about the actual widths of cracks and the slippage of bars and their measurements, an ingenious radiographic technique being described by Prof. R. H. Evans and A. Williams of the University of Leeds, England. The one U. S. paper (by D. Wattstein and R. G. Mathey of the National Bureau of Standards) described the determination of the decrease in crack width between the concrete surface and the surface of the reinforcing steel, a finding that was appreciatively mentioned by several discussors.

There was, however, a general feeling that since the width of cracks varies so much, and since cracks rarely form in straight lines, little was to be gained by attempting great accuracy in the measurement of crack widths. This directed attention to a very simple measuring device, described by J. F. Borges and J. A. Lima (Laboratoria Nacional de Engenharia Civil, Lisbon, Portugal). It consists of a rigid plastic scale upon which are drawn a series of black lines with thicknesses varying from 0.05 mm. to 5 mm. Used for direct visual comparison with cracks in beams, it was reported to be easy to use and to give reasonably accurate results.

Behind all the detailed consideration of crack widths is the supposition that there is probably some critical dimension above which cracks will cause serious trouble through corrosion of the reinforcing steel. After a review of all the evidence presented, Prof. Lobry de Bruyn (Technische Hogeschool, Delft, Holland), reported that there was still no agreement as to what this dimension

was and that other instigators of corrosion, particularly the use of porous concrete, were probably of much more serious moment.

This view was reflected by a report presented by L. Carpentier (Chief Engineer S.N.C.F., Paris), upon the study of the results of a questionnaire circulated in connection with the very large number of reinforced concrete structures now in use on the French National Railways. The replies showed that transverse cracking has not been harmful in general (although longitudinal cracking of beams has been). The general conclusion was that the survey had revealed nothing to suggest any departure from the standard methods of reinforced concrete design used by S.N.C.F.

A similar conclusion could be drawn from reports presented by Professor A. M. Haas (Technische Hogeschool, Delft), on surveys of cracking in 165 exposed structures in the Netherlands, and upon 140 protected structures.

• **Gaps in knowledge**—Among the gaps in present state of knowledge which were mentioned were the problems of cracking due to shear stress, and the cracking of reinforced concrete walls under load. Gaps of another sort were highlighted by reports of the chaotic state of nomenclature for reinforced concrete design, which is revealed in individual national design specifications.

The meeting also featured a good deal of discussion of the standard pull-out test for bond. Prof. A. Paduart (Free University of Brussels, Belgium), proposed a new set of standard dimensions for pull-out test specimens, based upon the diameter of the bar being tested. This proposal, and a strong suggestion that some action be taken to promote uniformity in nomenclature, was passed by the conference for consideration to the Permanent Commission of RILEM (under the auspices of which the symposium was organized), with appropriate reference to the work of the recently activated Technical Committee 71 of the International Organization for Standardization.

Air System for Home Heats and Cools Efficiently

A St. Louis residential builder, Milton Duenke, has installed an unusual type of heating and cooling system in his own new home and expects to make the same type of system an integral part of nearly 300 houses his company is putting up this year in Hathaway Manor, a 4,000 unit subdivision in northwest St. Louis County.

The system, evolved by Mr. Duenke

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and constructed by Harvey-Hill, Inc., of St. Louis, is unusual in that the normal treatment of air distribution is reversed. The main distribution duct, centrally located and extending the entire length of the 9 room house, contains most supply registers. Returns are in perimeter walls.

In the living room, dining room, game room and kitchen areas, the central duct forms a background for indirect lighting. The duct is concealed in bedroom and bathroom areas by means of a furred-down ceiling in the hallway.

Heating and cooling units are separate. The 4½ ton air-conditioning unit is concealed beside the entrance door, above a guest and bedroom closet and over the stairway, while the forced-air gas furnace is located down in the basement.

Vorhof-Duenke Real Estate Co. will have Harvey-Hill put a similar system in homes being built this year in the $34,000 to $40,000 price range. Mr. Duenke says the system, which works very well in the pilot model, costs no more than ordinary air-conditioning. He estimates that air conditioning adds from $1,000 to $1,200 to the price of a house.

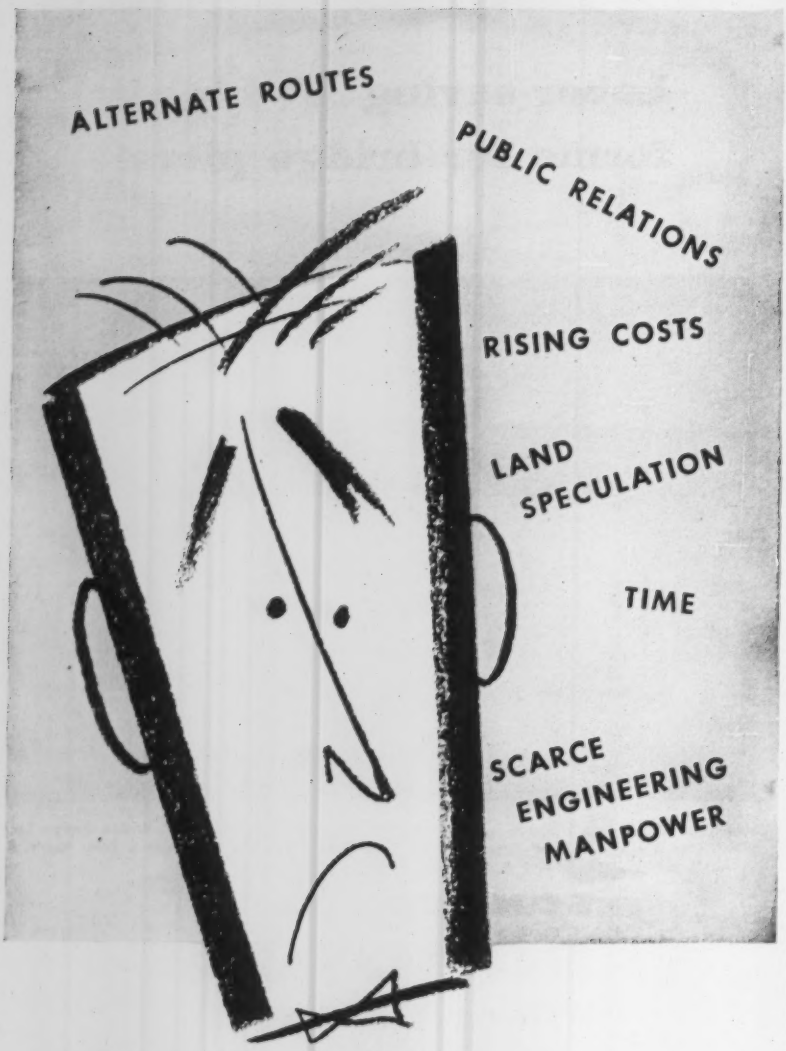
F. H. Harvey, Jr., of Harvey-Hill, says the Duenke layout offers an excellent solution for problems involved in handling both warm and cold air in the same system. He points out that the system eliminates ductwork, particularly in the basement, and that the central supply registers does not interfere with placement of furniture and drapes.

Engineers and Education Conference Set for Fall

The Western Society of Engineers will be local sponsor in Chicago this fall for a comprehensive conference on the relationship of problems of technical manpower supply and quality to the problems emerging in higher education in engineering and science.

Conference goals include an up-to-date picture of technical manpower problems and their implications for educational resources, and the highlighting of unique problems and opportunities in engineering, science and higher education.

The meeting will be held at the Edgewater Beach Hotel from Oct. 31 through Nov. 2, under sponsorship of the Engineering Manpower Commission of Engineers Joint Council, the Scientific Manpower Commission, National Science Foundation and the National Academy of Sciences-National Research Council.



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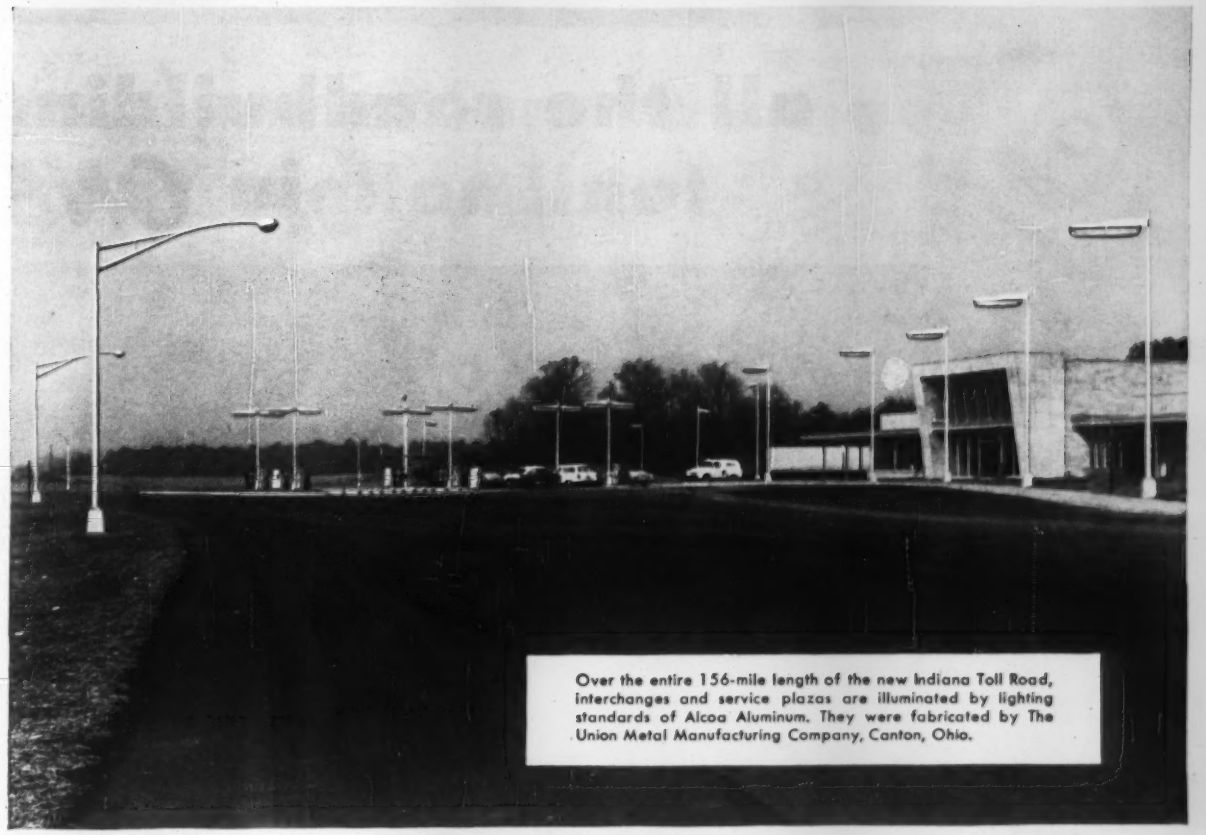

Over the entire 156-mile length of the new Indiana Toll Road, interchanges and service plazas are illuminated by lighting standards of Alcoa Aluminum. They were fabricated by The Union Metal Manufacturing Company, Canton, Ohio.

HERE'S WHY 1,700 LIGHTING STANDARDS ON THE INDIANA TOLL ROAD WILL NEVER NEED PAINTING

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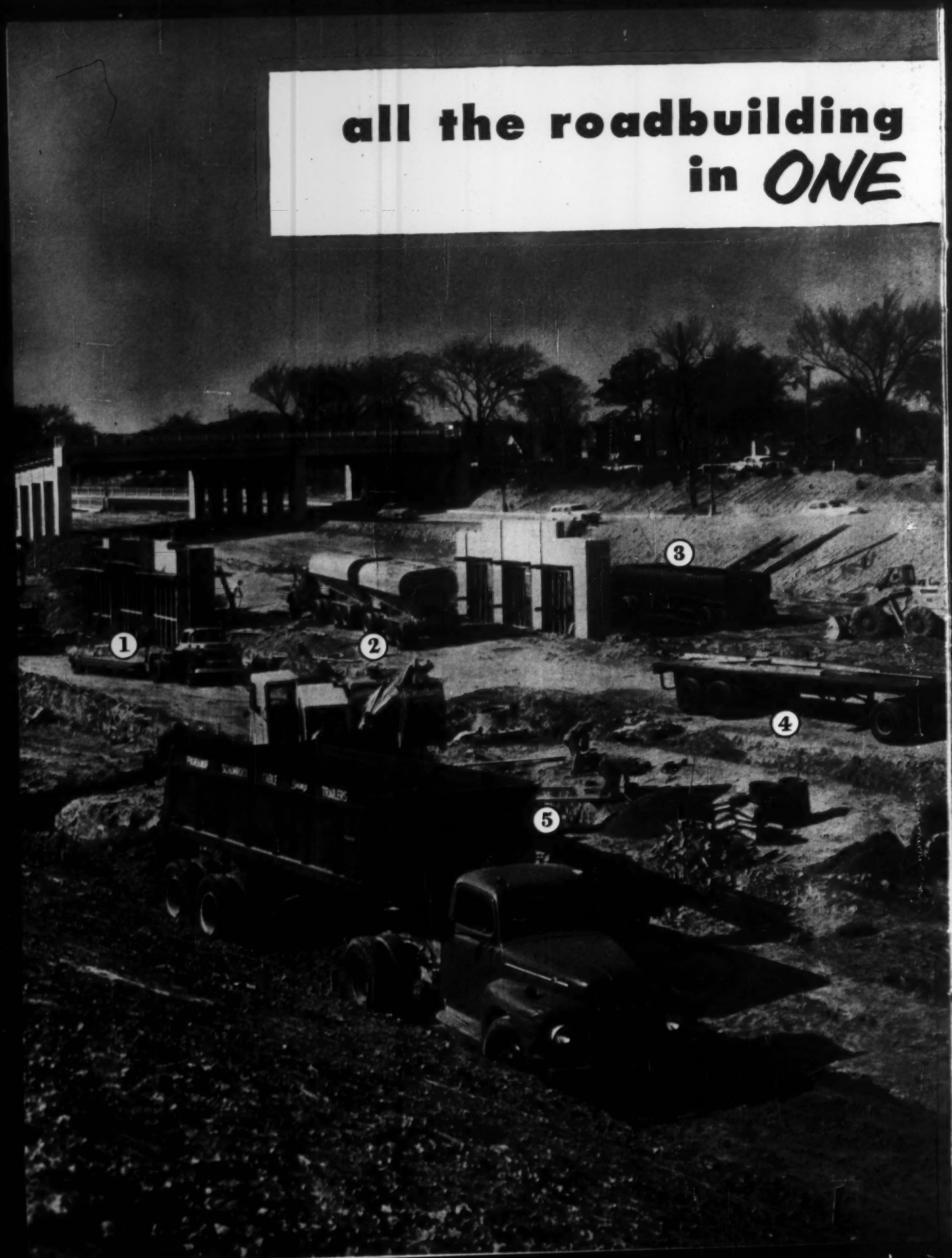
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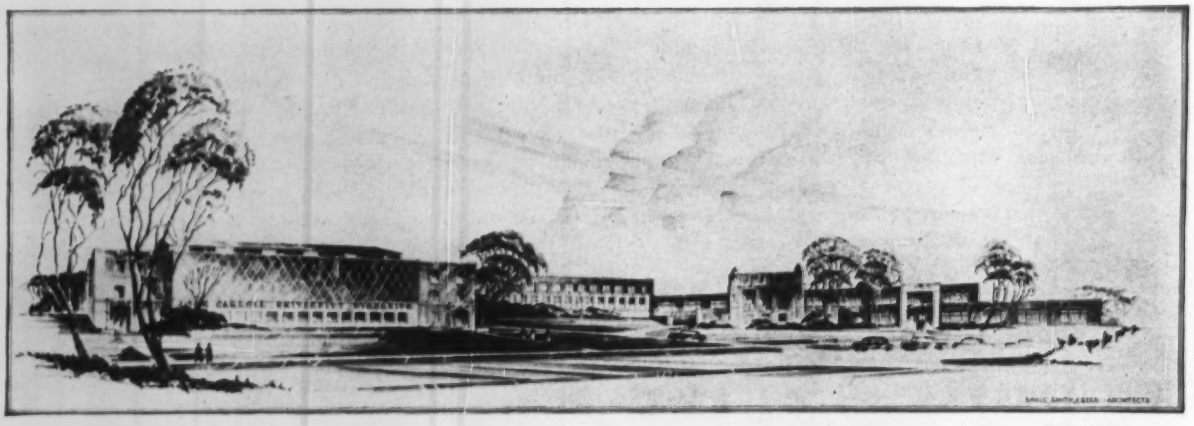

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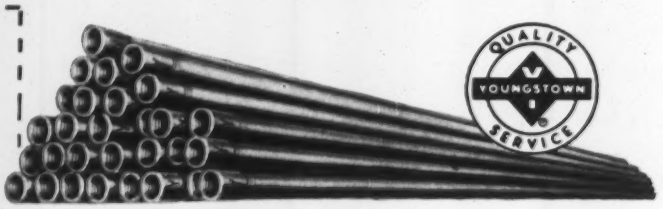


Good Faith No Excuse

Contractor liability not dependent on his intent

A case recently decided in Kentucky stands for two propositions: (1) A contractor cannot escape liability for damages stemming from improper performance merely because his mistakes were made in good faith; (2) Under a cost-plus contract, a prime contractor is entitled to take a percentage on the work done by a subcontractor.

The facts were these:

A contractor sued the corporate owner of realty to recover a 10% fee for work done under a cost-plus contract. The owners counterclaimed for damages resulting from performance of part of the work in an unworkmanlike manner and for excessive use of material and labor. The trial court entered a judgment in favor of the contractor, holding that the contractor was not responsible for defects that resulted from errors and mistakes made in good faith. This judgment was reversed by appellate court and a new trial ordered.[1]

The appellate court reversed the judgment of the trial court on the ground that the trial judge's instructions to the jury were wrong. He told the jury to find for the contractor if the directors were present while the construction was in progress and undertook to direct the manner in which the work was to be done, if the contractor exercised ordinary care to erect the motor court in a proper and workmanlike manner, and if defects which showed up, were the result of errors or mistakes made in good faith.

The appellate court pointed out that the owners did not supervise the work. While the owners were on the job on many occasions, "they did nothing more than ask questions and make suggestions as any interested property owners would do under the circumstances. The evidence does not show that the defendants (owners) took over the direction of the labor on the motor court, or brought about adjustments in the plans and specifications, unless by agreement, or selected or bought items of materials to be used in the building, except that, in one or two instances, purchases were made at the request of or for the convenience of plaintiff (contractor). * * * Unquestionably, the most pernicious part of this instruction is that portion which charged the jury that, even if imperfections did appear in the motor court, plaintiff (contractor) would be excused if such flaws were the result of slips or miscalculations committed in good faith. It is axiomatic that a negligent act from which damages flow cannot be condoned by a mere showing that the person who was delinquent never intended the mishap to occur."

One of the complaints made by the owners was that because the plumbing and electrical work were performed by subcontractors the general contractor was not entitled to the 10% fee on this part of the work. In dismissing this contention, the court stated: "It was the plaintiff's (contractor's) responsibility under the contract to select an electrician and a plumber who were skilled and reliable, and it was incumbent upon plaintiff to supervise their work to the end that it would meet all approved tests as to the materials and the workmanship involved. We believe a jury could reasonably find plaintiff entitled to compensation for these services under a cost-plus contract."

(1) Thoroughbred Motor Court v. Allen Company, 296 S.W. 2d 690, Court of Appeals of Kentucky, Dec. 16, 1956.

Architect Is Liable

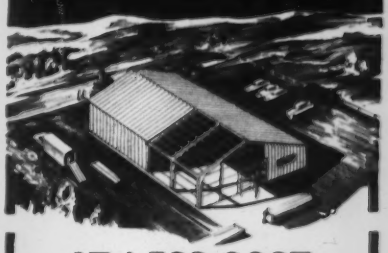
Owner is awarded damages for improper supervision

An architect employed to prepare plans and specifications for a building and to supervise its construction is liable to the owner for damages sustained as a result of negligent supervision of the work.

Last March, a California court, called upon to determine the liability of an architect engaged for general supervision, said: "There can be no serious contention that the architect's undertaking was that of an absolute guaranty that satisfactory results would ensue. On the other hand, the term 'general supervision' as used in the agreement must mean something other than mere superficial supervision. Obviously there can be no real value in supervision unless the same be directed towards securing a workmanlike adherence to specifications and adequate performance on the part of the contractor".

During the progress of the work, the owner, who later sued the architect, had complained repeatedly to both the architect and the contractor about the manner in which the work was being done. The contractor abandoned the

BUILD



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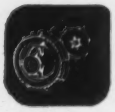

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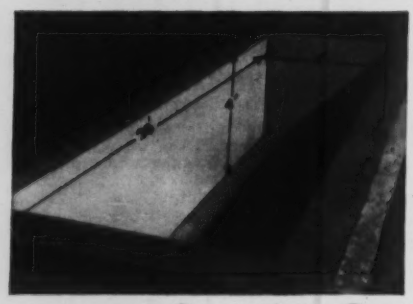

This Acid Tank at large mid-western forging plant, was poured with Sauereisen Pour-lay Concrete No. 54; 20' x 4' x 4', designed for 15% Sulfuric Acid at 150 to 175°F. In use for months with complete satisfaction.

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Ideal for lining existing tanks, saving time and replacement costs. 548

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building and the owner, after demolishing what had been done, engaged another contractor to construct the house.

The question of the contractor's recovery for the work he had performed was submitted to arbitration and the owner was allowed a deduction of $2,500. The owner then sued the architect for negligent supervision and was awarded $6,000 in damages.[1]

When the case was tried, the court found as a fact that the architect was guilty of neglect, that he had "carelessly and negligently disregarded" the owner's protests about the work, and that he had "failed to provide proper general supervision of the work".

As one of his defenses, the architect unsuccessfully contended that the owner had waived his right to damages by making a payment to the contractor with knowledge that the work was being performed improperly. This action, the court said, was not a waiver because the payment stemmed from and was predicated upon the architect's certification and was made with the understanding that the defects would be corrected.

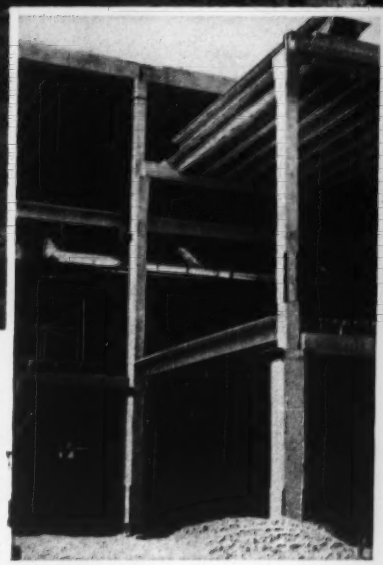
(1) Pancoast v. Russell, 307 P. 2d 719, District Court of Appeals of California, March 5, 1957.

Liability of Contractor For Defects in Building

A contractor is not liable for defects in work resulting from defective plans and specifications he is required to use. When the work is done according to plans and specifications, the contractor has fulfilled his contract.

In one of the leading cases on this subject,[1] a contractor agreed to furnish all the material and labor required to make the cellar of a building watertight. The work was to be performed in accordance with specifications which were made part of the contract. The contract provided that the work would be "turned over to the city by him in perfect order and guaranteed absolutely water and damp proof for five years from date of acceptance of the work. Any dampness or water breakage within that time must be made good by the contractor without any cost or expense to the city."

The work was under under the supervision of the city's engineers and inspectors and at no time was any objection raised as to the quality of materials furnished or as to the workmanship. Upon completion of the cellar, it was dry and in good condition. Later, dampness developed in the cellar and the city refused to pay the contractor



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Floor bays 27′ x 27′, prestressed girders and double tees have poured-in-place cover which forms composite section. Live load 200 lbs. per sq. ft.

Roof bays 27′ x 54′, prestressed girders and double tees. Live load 30 lbs. per sq. ft.

Erection was speeded by use of precast reinforced concrete columns.

Architect-Engineer—J. N. Pease & Company, Charlotte, N. C.
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Many successful applications in structures of virtually every description have proved the tremendous benefits of precast prestressed concrete members using straight strands.

Now architects and fabricators are finding that the deflected strand technique *further increases* the maximum span and load-carrying capacity of precast prestressed members. In fact, the only limitations of this method are casting-bed capacity and transportation facilities.

An additional advantage can be gained in multiple span structures by the use of continuity. This is achieved by placing ordinary reinforcing bars across the construction joints and pouring a small amount of concrete in place around these bars.

For data on tensioning elements and general information on prestressed concrete, write Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

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the final payment until he remedied the defective condition. The contractor then brought an action to recover the balance allegedly due under the contract. The action was dismissed by the trial court but this judgment was reversed on appeal.

The court stated: "The agreement is not simply to do a particular thing, but to do it in a particular way and use specified materials in accordance with the defendant's design, which is the sole guide. The promise is not to make watertight, but to make watertight by following the plan and specifications prepared by the defendant, from which plaintiff had no right to depart, even if the departures would have produced a water-proof cellar. If the contractor had designed and executed a plan of its own, which resulted in a tight cellar, it would not have been a performance of the contract, for it was to produce a water-proof cellar by following the plan and specifications made by the defendant and not otherwise."

A contractor is liable for defects when he has prepared the plans or guaranteed that the plans and specifications under which he is to perform are sufficient to accomplish the desired result.

(1) MacKnight Flintic Stone Co. v. City of New York, 160 N.Y. 72.

A Contract May Relieve Contractor of Liability

A construction contract may provide that the owner rather than the contractor assumes the risk of damages resulting from the construction work. If so, the provision is generally enforceable.

An example recently occurred in Kansas, where a contract covered cementing work on an oil well. In the process of the work, the well was destroyed. A clause in the contract provided that the cementing was to be done at the owner's risk. A Kansas law made the clause enforceable.

In denying the owner a recovery against the contractor for loss of the well[1], the court said:

The appellate court, in its opinion, stated: "We agree with the District Court that the provision of the contract relieving the defendant (contractor) of liability for loss or injury to the well was valid and effective both under the law of Kansas and the law generally applicable." The court cites many cases to sustain this principle of law.

(1) Associated Resources Corp. v. Halliburton Oil Well Cementing Co., 238 F. 2d 957, U.S. Court of Appeals, Eighth Circuit, Dec. 18, 1956.

(*Legal continued on page* 84)

New York Thruway in Greene County

DESIGNED FOR SAFETY

A wide median strip is one of the important safety features that highway engineers are designing into vital new roads such as the National System of Interstate and Defense Highways. Separating opposing traffic streams eliminates the hazard and discomfort of oncoming headlights at night.

Specify concrete for these great new roads and you will assure motorists of the safest, smoothest-riding highways that engineering talent can build. Concrete roads offer unmatched safety features: High skid resistance, whether wet or dry, and high light reflectance for safer nighttime motoring.

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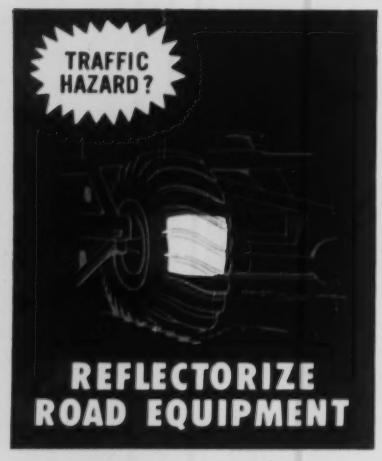

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. . . WITH A SPRAY OR BRUSH

Fast, one-step reflectorization as easy as painting! Hazards reflectorized with 3M's "Codit" Liquid flash brilliant warning at night for safety. Treatment costs a low 17¢ per square foot. Buy supply from your 3M Representative or write 3M Company, Dept. NR-87, St. Paul 6, Minnesota.

Get "Codit" Reflective Liquid in 6 oz. aerosol spray or 4 lb. can or complete safety kit.

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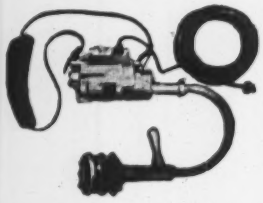
CONCRETE SURFACER MODEL A



"Berg" equipment is used extensively for surfacing and finishing applications on concrete construction.

The many "BERG" Models available, permit exact selection for your particular application.

The distinctive "BERG" features give you the kind of results that are realized in better quality work, combined with lower costs.

"BERG" Heads and Attachments are interchangeable, thereby providing adaptability for vibrating, wire brushing, sanding and polishing applications.

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. . . **Legal**

Contract Benefits

Cannot be denied by preventing performance

In every contract there exists an implied covenant of good faith and fair dealing. Neither party may do anything that will have the effect of destroying or injuring the right of the other party to receive the fruits of the contract.[1]

Application of this legal principle occurred a number of years ago in a New York case involving subway construction. A contractor, who wanted a subway job but who didn't have the necessary experience, asked an engineer and a construction superintendent to prepare a bid with the understanding that if the contractor was awarded the contract he would hire them to supervise the work and would pay 25% of the profits in addition to a specified salary.

After submitting the bid, which was the lowest, the contractor decided he didn't want the job and, to avoid getting the contract, he deliberately submitted an insufficient financial statement.

The engineer and superintendent sued the contractor for loss of profits, contending that the bid allowed for a profit of $500,000, of which their share would have been $125,000. The case was dismissed by the trial court as "too speculative" but the appellate court ordered it reinstated.[2] It was up to the jury, the court said, to determine whether the contractor's wrongful act prevented consummation of the contract and what the profits would have been had the contract been awarded.

A similar issue was recently before a Missouri court, which said: "It is a well established principle that if a promisor prevents or hinders the occurrence, happening or fulfillment of a condition in a contract, and the condition would have occurred . . . except for such hindrance or prevention by the promisor, the performance of the condition is excused and the liability of the promisor is fixed regardless of failure to fulfill the condition".[3]

(1) Halstead et al. v. General Ry. Signal Co., 51 N.Y.S. 2d 372, affirmed 52 N.Y.S. 2d 660.

(2) Beer et al. v. Decker et al., 251 N.Y. Supp. 922.

(3) Schulte Transportation Co. v. Hewitt, 299 S. W. 2d 568, St. Louis Court of Appeals, Feb. 28, 1957.

These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.

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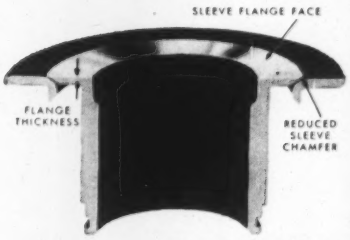
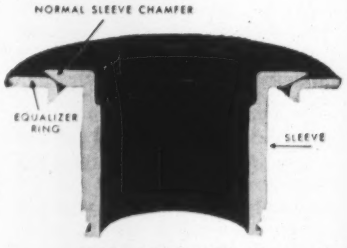
In Field-Rebuilt Clutch Sleeves All That Shines is Not New



SHINY CONTACT FACE on re-ground clutch sleeve indicates unprotected soft iron surface.



NEW LIPE CLUTCH sleeve easily identified by dark color resulting from rugged .007" case hardening and protective surface coating.

Every Lipe Factory-Exchange Clutch is tagged and sealed at the factory — your guarantee of genuine Lipe parts and craftsmanship.

Ordinary clutch rebuilders just don't have the resources or the expensive equipment needed to recondition clutches the Lipe quality way. Some rebuilders even use unskilled labor, too few new parts and inadequate inspection methods: Practices that naturally lower the quality of the rebuilt clutch and shorten its service life.

At left is a typical example of inadequate reconditioning. Instead of replacing, as Lipe does, a worn or scored clutch sleeve with a new one, the rebuilder re-grinds the surface down through the case hardening to the soft metal beneath. That means the sleeve will wear quickly, and cause serious damage to the throwout bearing and a high rate of destructive slippage — *all greatly reducing the life of the clutch.* Such an improperly rebuilt clutch tested recently showed a total direct pressure loss of 120 lbs.!

Slipshod reconditioning always costs more in the long run. It pays to get genuine Lipe Factory-Exchange Tagged and Sealed Clutches. Contact your nearby authorized Lipe jobber for quick exchange service.

LIPE ROLLWAY

Lipe-ROLLWAY CORPORATION SYRACUSE 1, N.Y.

Manufacturers of Automotive Clutches and Machine Tools

BALANCE your tractor fleet

You have two general classifications of tractor work on most every earthmoving project: ① Your concentrated short-haul pushing and dozing, and ② your hit-and-run pioneering, your scattered odd-job assignments, and your clean-up and finishing operations.

Question: Which type tractor — crawler or rubber-tired — will pay-off best on these basically different work classifications?

① For most of your heavy, short-haul work . . . for push-loading large scrapers . . . dozing in slippery mud or rock-filled earth . . . and for "stay-put" work in limited areas . . . your slow-moving track-type tractors fill the bill because they have more lugging power at slow speeds.

② For work where travel range is important . . . for pioneering, leveling scattered fill, towing "part time" scrapers, stockpile clean-up, maintaining haul and access roads, handling finish-grade dozer service, and doing dozens of "chores" scattered over a wide work area . . . your best bet is today's improved 210 hp, 17 mph, rubber-tired Tournatractor®.

Question: How to balance your tractor fleet for maximum profit? . . . How many on crawlers? How many on rubber?

Because every job is different . . . because every project varies in the amount of short-haul, and scattered operations . . . there is no established pattern to follow . . . no fixed percentage that we could recommend. There are contractors who say a tractor fleet should be evenly balanced, half "track" and half "rubber". Others say one in three should be rubber . . .or even one in four. We know owners who have found that one Tournatractor handles the work of two crawlers on their particular operations, and have gone all-out for "rubber". We know, too, that there are some operations where rubber-tired tractors can't work as well as crawlers. So let's be realistic.

Basically, you don't give a hoot for any kind of tractor unless you're convinced it will "pay for its oats" . . . with a comfortable profit margin. Before buying any tractor you will find it to your advantage to study carefully the following phases of your work requirements.

Question: What percentage of work hours do you have for slow, heavy-lugging traction? — What percentage of hours for scattered work, where speed and mobility can save you time, and money?

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Answers to these questions vary in different types of jobs, materials to be moved, work areas to be covered, size of cuts and fills to be worked. No "formula" answer can be arrived at. There is a middle ground where rubber and crawler traction more or less offset each other in advantages, so you don't need to work out an exact formula. Start with a small percentage of rubber-tired tractors where you obviously need the maximum in speed, maneuverability, and mobility. Then extend your rubber-tired percentage as you find it profitable for your operations.

Since crawlers have followed pretty much the same pattern in design and construction for the past quarter century, you are familiar with their use and application. But since heavy-duty, rubber-tired tractors came into extensive use in the earth-moving field only in recent years, there may be operational characteristics about this type of machine which you would like reviewed. Here are a few quick facts about our Model C Tournatractor that may be helpful to you:

210 hp — choice of Cummins or GM diesel engine.

Power-shift transmission, constant-mesh type, with single-stage type torque converter.

Four gears forward through standard torque converter, to 17.2 mph; two reverse to 7.2 mph.

Multiple-disc air brakes on all 4 wheels, with 3,762 sq. in. braking surface. Mechanical parking brake.

Skid-steer, controlled by tractor's big air-actuated clutches.

Tires, 21.00-25, 16-ply rating, standard; wide-base, 26.5-25, 14-ply rating, optional. Choice of Traction or Rock Service treads.

Length — 15′1½″, width — 10′6″, height, to top of exhaust-stack — 8′11½″, wheelbase — 6′0″, ground-clearance — 13½″, weight — approximately 30,000 lbs.

Advantages:

1. Drawbar and traction to equal crawlers of comparable engine horsepower when working the tractor at speeds above 2 mph.

2. Mobility to move anywhere under its own power. A mile is less than 4 minutes away! And Tournatractor travels twice as fast as crawlers to reach on-the-job assignments . . . to help meet emergencies of job or weather . . . helps step-up production on sections behind schedule.

3. Roadable to travel anywhere. With rubber-tired mobility you eliminate the need for lowboys to haul the tractor to other job sites. You save the cost of extra manpower and equipment.

4. Speed: With power-shift transmission, speeds change instantly, save as much as 80 minutes per 10-hr. day on dozing or pushing applications. Gear ratio provides effective speed-and-power relationship, with minimum slip and heat in torque converter. Anti-friction drive gives quick acceleration. Without the drag of setting into motion the 500 or more moving parts in the average crawler linkage, you step right out and GO.

5. Operation of power controls is fast and accurate . . . with simple, time-proven, electric motor-control system. Touch a switch, motor reaches 1800 rpm from standing start in 1/5 second; reverses for full power in 1/4 sec.! There is no pause to "feel-in" clutch, no waiting for hydraulics to build pressure. Action is *instant* and *easy*. Operators "take" to Tournatractor like ducks to water. They like its speed, its quick-stop brakes, its push-button handling.

6. Maintenance: Owners all over the world report their maintenance costs on Tournatractor are ¼ to ½ the cost of crawler maintenance. The reason is obvious:

4 wheels with tires replace more than 500 track parts that wear out and must be regularly replaced.

Because of fewer lube points, Tournatractor cuts daily lubrication to less than one-half the time for a crawler-tractor.

Electric controls vs hydraulics? . . . not much maintenance on either in their present state of perfection.

Parts stock? . . . substantially reduced for rubber-tired tractors as compared to crawlers.

When working toward the proper balance of crawler and rubber tractors for your operations, keep in mind the growing importance of *speed* and *mobility* needed to handle today's bigger and faster dirt-moving jobs *at a profit*. Tournatractors and crawlers can be teamed in proper balance to handle your work at lowest cost . . . using crawlers to "lug" and Tournatractors to "run". On the next 4 pages, read typical examples describing ways your work-and-run tractor-on-rubber balances your heavy-duty tractor operations for maximum pay-off.

for extra profit . . .

Clears right-of-way for production earthmovers — — —

While your heavy-duty crawlers grub out rocks and stumps, break up shale, and loosen hardpan, there's plenty of widely-scattered pioneering where rubber-tired Tournatractor can save time . . . and get your production haulers started to work earlier. Use this fast-moving machine to pile trees and brush, clear turn-around areas, push aside scattered boulders and debris. Use it to build and maintain access roads, cut drainage ditches, to keep your borrow pits and haul roads dry. Well-maintained haul roads mean faster pay-dirt travel, higher profits.

—more on following 4 pages

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advertisement continued

Handles clean-up around shovels

Two shovels, each working in blasted rock at opposite ends of an 800′ cut. Turn-around areas are narrow. Clean-up at both shovels, a problem. To tie-up two crawlers, one at each shovel, is expensive. To transport one crawler back and forth over the hump would be time-wasting, expensive, and hard on the tracks. So you send in one man on one fast, rubber-tired Tournatractor®. Making its own road over the rocky hill, this sure-footed tractor shuttles back and forth fast between shovels, handles all clean-up, has time between runs to do a little land clearing, road maintenance, and drainage. May even have time for other odd-job services that put extra dollars in your pocket!

Quickly reconditions mucky haul road

Your big scrapers, carrying capacity loads, are cutting mucky haul road with deep, slippery ruts that slow production cycles. Tournatractor, pulling 4-drum sheep's foot roller on fill a mile away, is called to drop the pin and get on the job. In 5 minutes the fast, rubber-tired tractor goes to work regrading the damaged haul road. With quick forward passes, and fast reverse, Tournatractor dozes in fresh fill on mucky stretch, levels surface, cuts a trench to improve drainage . . . and production scrapers get back on schedule. Tournatractor returns as often as needed to regrade and drain the mucky road, taking only a few minutes from its regular assignment to keep the big machines hauling at top capacity.

BALANCE your tractor

Repairs access road to isolated farm

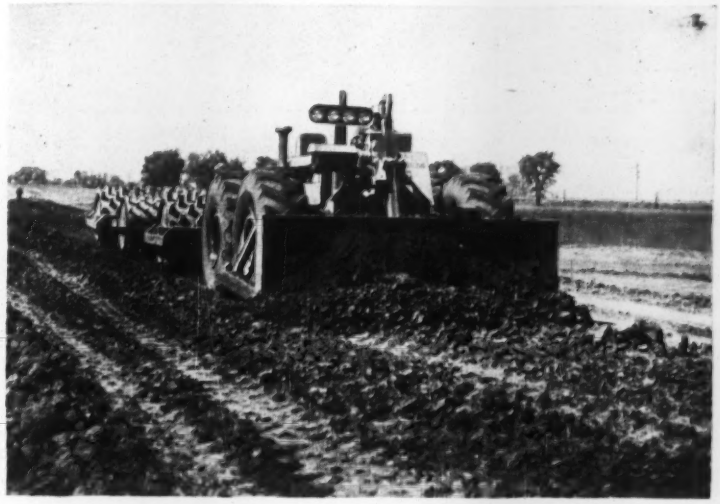
Farmer's access road 5 miles down the pike washed out. He can't get his pick-up out to the road, can't move his cream and produce to market. He's mad! He calls your boss, the highway department, he screams. You get word to your Tournatractor operator. He's on the job in 20 minutes. Road is repaired in 20 minutes. Your one-man emergency crew is back on his regular job in 20 minutes. One man, one hour, and the farmer is happy! Next day you patrol the project for other possible wash-outs. Find a few weak spots. Dispatch Tournatractor to make "prevention" repairs. Jobs completed in short time. You've saved money, made many friends.

Stockpiles materials, spreads sub-base

Crushed stone has been unloaded at rail head . . . material must be cleared from tracks, dozed into stockpile 150 ft. away. Tournatractor, banksloping on new highway-cut 4½ miles away, is assigned to job. It arrives in 22 minutes. Big dozer blade averages 2½ cu. yds. per pass. Machine pushes average 150 ft. in 34 seconds . . . returns for new bite in 18 seconds. Tractor heaps material into well-trimmed stockpile for clean storage and easy pick-up by loader. Tractor on rubber then runs to new assignment 2 miles away, where it goes to work spreading crushed-rock sub-base for new highway. There's always plenty of work for Tournatractor . . . plenty of ways it can help to speed up your tractor applications.

Big 2-ft. wide tires aid compaction

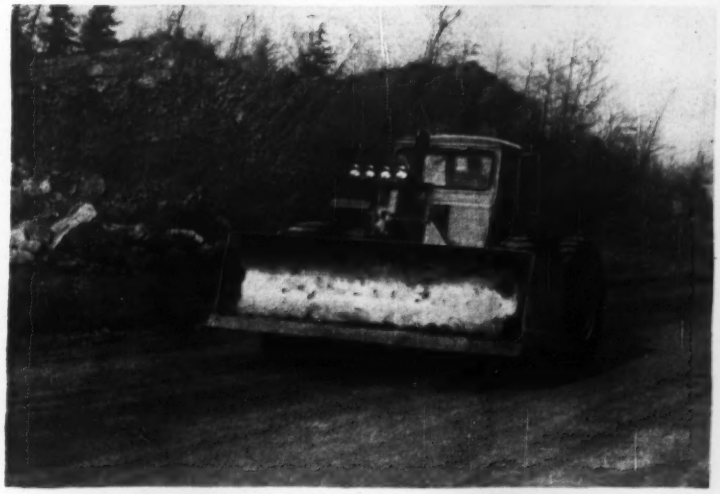
Material on fill is piling up fast. It needs continuous compaction in order not to delay scraper cycles. Tournatractor, pulling 6-drum sheep's foot roller, goes to work. With dozer blade, machine levels high spots ahead as it pulls the 35-ton tandem rollers. Big 2' wide tires add 20-ton compaction in tire tracks ahead of rollers. By making successive passes to lay down tire tracks side-by-side, ground pressure of tires supplements roller compaction very effectively. Valuable time is saved in meeting compaction specifications . . . scrapers continue on uninterrupted schedule. Tournatractor easily pulls multi-drum sheep's foot units or 50-ton rubber-tired compactors. Its ready maneuverability, plus extra speed when needed, makes for orderly scraper spreading at all times. In this, as in many other applications, the speed and mobility of Tournatractor can boost your profits.



Cuts emergency drainage ditch

Rain forecast for tonight . . . could easily flood poorly drained cut in spongy clay, could side-line your production fleet for days. Tournatractor, at work on land-clearing job 2 miles away, is called upon to correct the situation. In 10 minutes, fast-moving tractor is at new assignment, digging emergency drainage ditch, smoothing the cut and haul roads to eliminate water pockets. No production delay today . . . and come heavy rains tonight, the dirt will still roll on schedule tomorrow! This job finished, Tournatractor heads for the next . . . and the next. It's the busiest tool in your fleet, doing a variety of jobs, saving you money, increasing your daily profits.

fleet for extra profit . . .



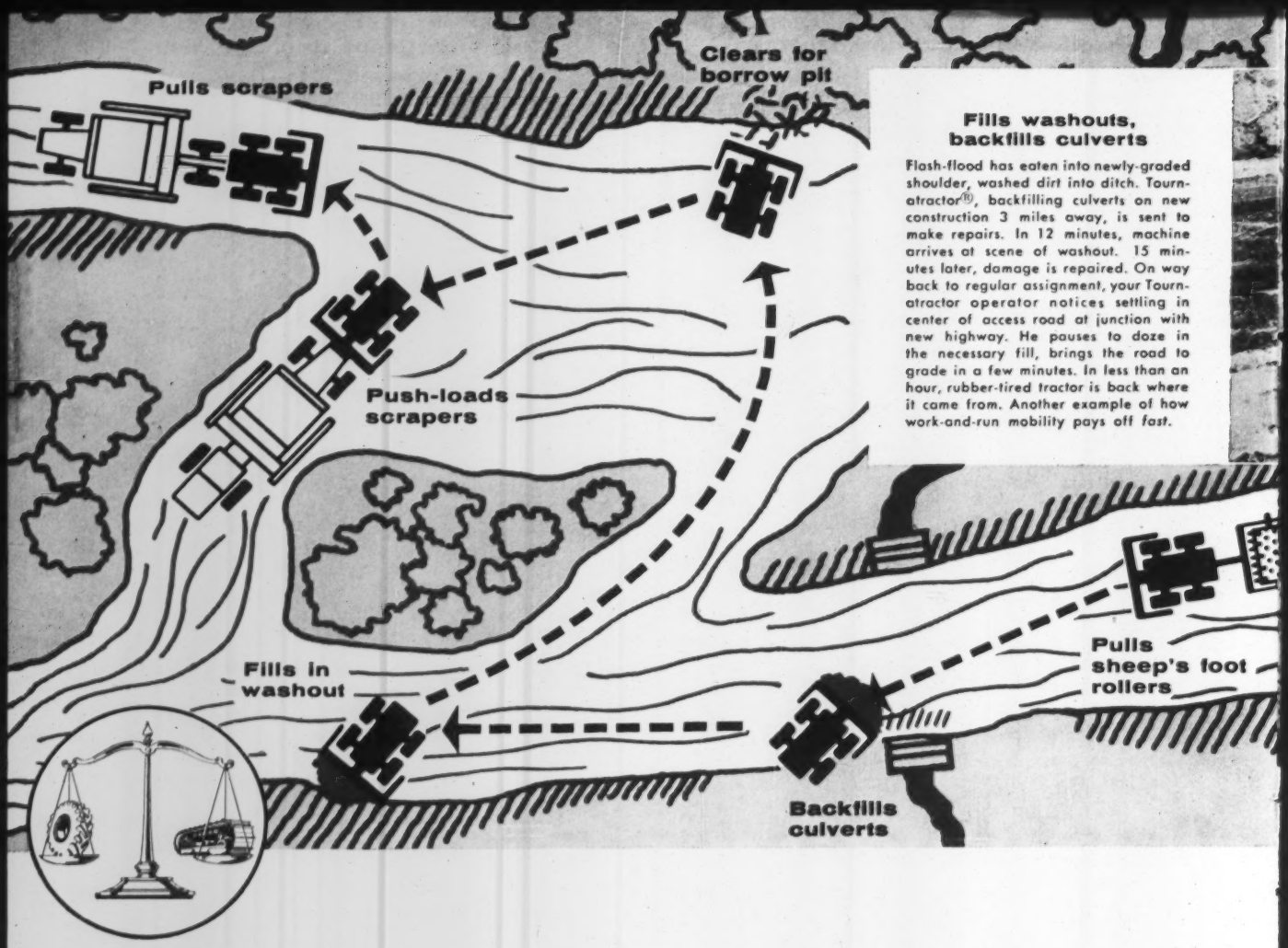
Balances production—cuts time lost in moves

When moving production fleet . . . self-propelled scrapers roll fast and easy over highway or right-of-way to new work area. Tournatractor rolls with 'em. Without waiting for crawler pushers, which must be loaded on flat-beds, hauled to the job site, and unloaded, your scrapers can begin work on arrival . . . with drive-in Tournatractor pushing. In this surface-skimming operation, Tournatractor will beat crawler-pushers any way because it maneuvers faster, gives scrapers a faster running start. At least an hour or so of profitable production is gained before slower crawler-pushers arrive. And, when short hauls bunch-up your scrapers in the cut, there is no need to lose production and profits. Just drive in Tournatractor. This speedy tractor will quickly balance your pusher operation 'till longer hauls get your production fleet back into an efficient spacing.

Dozes short-haul dirt for plus profits

A property owner near your job wants land leveled for building site, or drainage, or to enrich a farm field. You "borrow" Tournatractor from production fleet to do this job which may be several miles away. Traveling over highway, through city streets, fast, rubber-tired tractor can be at work site 4 miles away in 15 minutes. Machine goes right to work. Say the job is to stockpile topsoil . . . cut down some high spots . . . doze short-haul dirt to fill a small ravine . . . level surface to grade . . . then spread topsoil. Whole job takes only a few hours . . . fast-working and traveling tractor is back at main assignment with no delay to the main job . . . has earned $75 or so extra pay!

-more on following 2 pages



Fills washouts, backfills culverts

Flash-flood has eaten into newly-graded shoulder, washed dirt into ditch. Tournatractor®, backfilling culverts on new construction 3 miles away, is sent to make repairs. In 12 minutes, machine arrives at scene of washout. 15 minutes later, damage is repaired. On way back to regular assignment, your Tournatractor operator notices settling in center of access road at junction with new highway. He pauses to doze in the necessary fill, brings the road to grade in a few minutes. In less than an hour, rubber-tired tractor is back where it came from. Another example of how work-and-run mobility pays off *fast*.

BALANCE your tractor fleet

continued

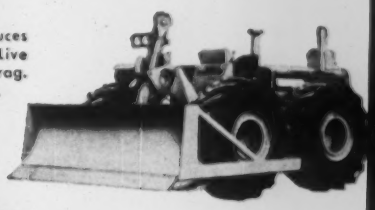
If you are double-heading pusher units . . .

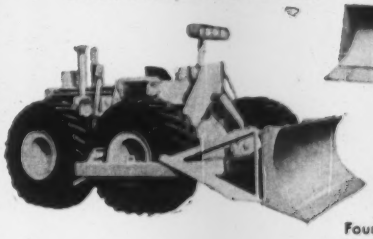
To get capacity loads, *fast*, for your biggest scrapers, use this LeTourneau-Westinghouse 420 hp, rubber-tired Twin-C® pusher. With its 40 tons tractive weight, four-wheel synchronized drive, with power-transfer differential, speeds to 20 mph, 7' high and 2½' wide tires, this machine develops 64,500 lbs. drawbar pull. It takes the place of tandem-pushers, gives you the economy of one-man, one-machine operation. With kingpin electric-steer it maneuvers fast, makes 60° turns right or left, lines up faster than any pusher you ever saw. Get full details on Tournatractor's big brother, the Twin-C.

Broaden your base for bigger profits with these Tournatractor attachments

BULLDOZER

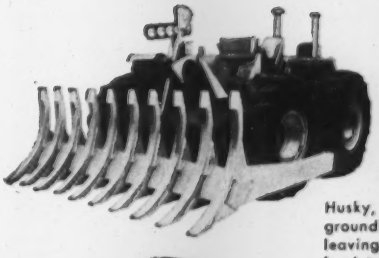
Blade with flow-contour reduces power required for pushing. Live load rolls ahead with less drag. Electric down-pressure standard.





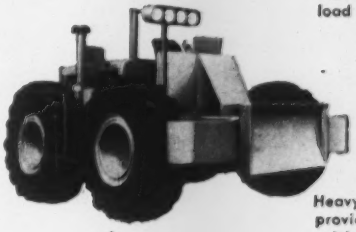
ANGLEDOZER®

Four-way power adjustment permits blade to be tilted up and down . . . forward or back on either side. Excellent for side-hill work.



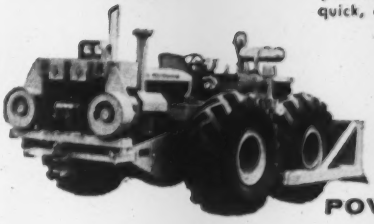
ROOT RAKE

Husky, alloy-steel teeth "comb" the ground, ripping out roots and rocks, leaving the earth in place. Carries load to spoil pile, sheds readily.



PUSH-BLOCK

Heavy-duty bumper and push-plate provides large, smooth surface for quick, accurate contact.



POWER-CONTROL UNIT

Rear-mounted single or double-drum electric, enables Tournatractor to operate any cable-operated scraper through push-button controls.

TREE-STINGER

Reaches high up on trunk to rip trees from ground. As load increases, angle of push puts down-pressure on tires, increases traction.

*Trademark CT-1517-DC-6

Torque converter and constant-mesh transmission are standard equipment on Tournatractor. Their cost, together with their *plus* performance, is included in the standard price. *Job-rated* tires, 21.00-25, 16-ply, are included. *Wide-base* tires (26.5-25) for extra traction and flotation, are available at nominal cost.

How about a tractor demonstration?

The best way to judge a machine is to see how it can work for YOU. We suggest you give Tournatractor a look. Let us give you a list of owners. Talk to them, talk to their operators and mechanics in your area. When Tournatractor is not busy with "emergency" service, work it alone, or team it with your crawlers. Get the "feel" of its ability to handle most tractor assignments on your jobs in less time, and at a bigger profit. See how much more work you can do when your tractor fleet is balanced . . . with tracks to "lug" and rubber to "run". Ask for a Tournatractor demonstration. Or add one as a test to your crawler fleet. You can't go wrong with one of these high-speed tractors for the trouble-shooting assignments on your job.

for extra profit

Your nearby LeTourneau-Westinghouse Distributor will be pleased to survey your job problems and point out where Tournatractor can help you most. He'll be glad to arrange a demonstration whenever — and wherever — it suits your convenience. Ask him, also, for your copy of our free booklet, "Tournatractor, and the 4 dimensions of today's earthmoving".

Note: If you would like extra copies of this 6-page pictorial on how to apply "rubber" for bigger pay-off on your tractor fleet for your staff, or for a discussion meeting, please write stating quantity desired.

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"Economical in Initial Cost...
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That's why Hunter Engineering Co. specified 90,000 square feet of

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What an engineering company specifies for its own building use is a good guide for all industrial builders. Hunter Engineering Co., Riverside, Calif., had three good reasons for choosing Reynoroof Industrial Corrugated Roofing and Reynoside 8" Rib Embossed Siding: low first cost, freedom from maintenance, modern design. To these must be added the high heat reflectivity that keeps buildings warmer in winter and as much as 15° cooler in summer, and the light reflectivity that makes interiors brighter. It's the specification for better value in *your* building!

Reynoside
Ribbed Embossed Siding is available with 4" ribs, .032" thick; and with 8" ribs, both .032" and .040" thick. Lengths from 5' to 22'5". Ribs 1" deep, nominal 40" coverage.

Reynoroof
Industrial Corrugated Roofing is .032" thick with 2.667" corrugations 7/8" deep. Nominal width coverage 32" and 45 1/3". Lengths from 5' to 12'.

A complete installation service is available. For name of nearest franchised Jobber-Erector, call the Reynolds office listed under "Building Materials" in classified phone books of principal cities. Or write to Reynolds Metals Company, Building Products Division, Louisville 1, Kentucky.

See "Circus Boy", Sundays, NBC-TV. Watch for Reynolds on "Disneyland", ABC-TV.

REYNOLDS ALUMINUM
BUILDING PRODUCTS

Georgia Highway Secretary Takes Position With AGC

George T. McDonald has announced his retirement as executive secretary of the Georgia State Highway Board, ending a 30 year career in the highway field, to accept a position as director of the highway and heavy construction division of the Associated General Contractors of America, Inc.

Mr. McDonald joined the highway department in 1927 as a resident engineer at Dalton and in 1937 was placed in charge of post roads in the South Georgia area, comprising 53 counties. Moving to hearquarters in 1939, he became assistant state highway engineer and director of the post roads division. He was promoted to chief engineer in 1941, and in 1945 became chief administrative officer, with the title of engineer-director.

In 1952, at the request of the State Department in Washington, Mr. McDonald was granted leave of absence and went to Iraq as chief engineer of an American group of highway engineers assigned to establish a basic system of highways in that country. While in Iraq he also acted as consulting engineer to the Lord Mayor of Baghdad.

Mr. McDonald returned to Georgia in 1954, resuming his position with the Highway Board as executive secretary and director of the post roads division.

Careers

Education

David K. Blythe is named head of the University of Kentucky Engineering College's civil engineering department to replace **Prof. R. E. Shaver,** successor to **Dean Daniel V. Terrell,** dean of the college, who will retire (ENR April 25, p. 91).

Business

W. H. Corddry is elected president of Gannett Fleming Corddry & Carpenter, Inc., consulting engineers, Harrisburg, Pa., succeeding **Farley Gannet,** who becomes chairman of the board of directors. The company also has formed an associated partnership to handle various consulting engineering assignments; partners are W. H. Corddry, J. D. Carpenter, J. R. Dietz and R. W. Foster.

James A. Mandigo has been appointed as representative in the engineering development of airports and related facilities by J. E. Greiner Co. of Baltimore. Prior to joining Greiner, Mr. Mandigo, a civil engineer graduate of Kansas State University, held the position of Director of Facilities for Trans-World Airlines passenger service department.

Theodore R. Byl joins the engineering staff of Stevens & Thompson, Portland, Ore., to head its new industrial development division. He was with Gannett, Fleming, Corddry & Carpenter, Harrisburg, Pa.

Stephen Wehner is made consulting hydraulic engineer for Pioneer Service & Engineering Co., Chicago, giving up post of chief hydraulic engineer to **Wilbur R. Barrows.**

Robert A. Warren has established an architectural-engineering consulting office in Aurora, Ill.

C. A. Budnik has joined Kaiser Engineers, Oakland, as assistant manager of the industrial construction division.

W. F. Tracy has been selected as vice president in charge of production for the Southwest Concrete Materials Corp., Little Rock.

C. E. Vick, general industrial agent for the Atlantic Coast Line Railroad since 1956, has been named assistant to the vice president of the line, with headquarters at Wilmington, N. C. He began his career with the company in 1925 as a rodman. In 1929 he was transferred to Jacksonville, Fla., where he served for 13 years as junior engineer, assistant engineer, office engineer, senior assistant engineer and division engineer.

William H. Sorrell and **James D. Mattis** announce the formation of a new consulting engineering firm under the name of Sorrell & Mattis Associates, Inc., located in Indianapolis, Indiana. Mr. Sorrell is a 1928 graduate of Purdue University, recently completed two years as a member of the Indiana State Highway Commission after seven years service in the Engineering and Maintenance Departments. Mr. Mattis is a 1949 graduate of Purdue University with eight years experience in the structural engineering field.

Robert J. Hannon has been appointed by the Allstates Design and Development Company, Inc., Trenton, N. J., as staff engineer to head the Highway Engineering Group of the company's Engineering Computer Section in the Trenton Division. A graduate civil engineer with experience in the application of computers to engineering work, Mr. Hannon will be responsible for adapting the IBM "650" and "704" to all phases of highway engineering projects.

Jackson T. Stephens, president of

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—4 Fabric Metals
—2 Types Metal Posts
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—Single or Double Extension Arms
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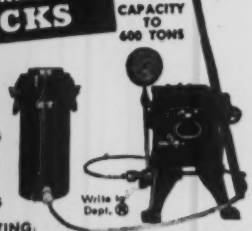

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. . . Men and Jobs

Stephens, Inc., Little Rock, Ark., was elected at a meeting of the Board of Directors, Missouri Pacific Railroad, to fill the unexpired term of Robert B. Anderson, president, Ventures, Ltd., New York. Mr. Anderson, whose term expires in May 1958, tendered his resignation in connection with his acceptance of the post of Secretary of the Treasury in President Eisenhower's cabinet.

E. D. Case, president of Pitometer Associates since 1946, becomes chairman of the board, and **E. Shaw Cole** becomes president, moving up from post of vice president and chief engineer.

R. D. Burnham has formed the new firm of R. D. Burnham & Associates in Lorain, Ohio. The firm will specialize as electrical and lighting consultants.

E. S. Preston, formerly engineer of location and design with the Ohio Department of Highways, has organized Photronix, Inc., offering an integrated highway engineering service in aerial photogrammetry and electronic computation. Mr. Preston was instrumental in developing the Ohio method of mechanized highway design (ENR Mar. 14, p. 37).

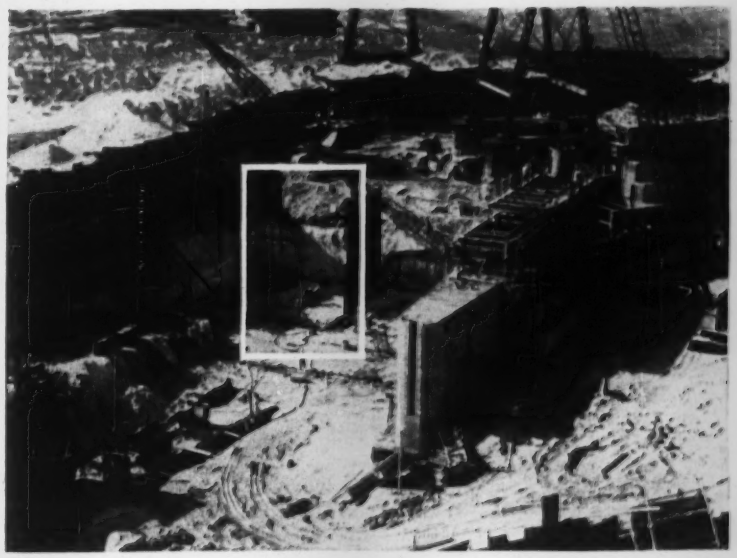
Joseph S. Myers has been elected as an assistant vice president of Merritt Chapman & Scott Corp., for the company's construction operations. Associated with MC&S for 11 years, he has served since 1954, as a vice president of Merritt-Chapman & Scott Overseas, Inc., a subsidiary engaged in foreign construction. A specialist in marine, heavy engineering and construction, Myers first served with Merritt from 1928 to 1931 and rejoined the company in 1948 after a number of years as plant engineer of Bethlehem Steel Company's New York area shipyards.

Thomas L. English has been promoted to general superintendent of construction for The Rust Engineering Co. He has been assistant general superintendent for three years, and succeeds **N. K. Steenhill,** who was named a project manager.

R. S. Anderson has been appointed assistant chief engineer for the Pittsburgh & West Virginia Railway Co. with headquarters at Pittsburgh. At the same time, **W. K. Kearns** was appointed engineer of Maintenance of Way with headquarters at Rook, Pa.

Horace O. Titus, former chief bridge designer for the Wyoming State Highway Department, is now chief design engineer for Gate City Steel, Inc., of Boise. A civil engineering graduate of the University of Wyoming, Mr. Titus had been associated with American Bridge Co., the U.S. Navy and the South Dakota Highway Commission.

"DEWATER SANDSTONE WITH WELLPOINTS? *IT CAN'T BE DONE!"*



"STANG *DID IT!"*

Holding back the mighty Mississippi is a king-sized job anytime, but it posed a particularly tough problem on the St. Anthony Falls Lock and Dam project.

The job called for dewatering and support of a crumbly, porous sandstone material on the very edge of the river and immediately adjacent to the cellular cofferdam. The prime contractors Johnson-Kiewit, together with the U.S. Army Engineers supervising the project, made a daring decision. They called for Stang wellpoints to eliminate the serious piping which developed from the river, under the cellular cofferdam and on into the excavation area.

They banked on Stang's versatility and it paid off. The wellpoint installation was highly successful; not only eliminating the piping condition, but actually lowering the water table below the deepest subgrades.

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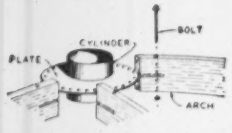
44 Rilco arches: length 40' 3½", radius 25', center height 25' 7-13/16"



Crown connection — 1" 10¾" diameter plate welded to 12" diameter cylinder. Bolts through each arch pass through holes in the plate. The slotted arches abut against the cylinder.

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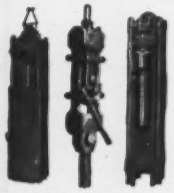

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. . . Men and Jobs

Honors

Leif J. Sverdrup, consulting engineer, St. Louis, and a major general in the U.S. Army Reserve, was honored in Pentagon ceremonies June 6. General Sverdrup (ENR Apr. 4, Cover and p. 89) was given a certificate of achievement by Army Secretary Wilbur Brucker, citing his "exemplary contributions to the development and military readiness of the reserve components of the Army."

Eugene Freyssinet, a French engineer famed for his work with prestressed concrete, has been awarded the Gold Medal by the British Institution of Structural Engineers.

Retirements

B. P. Thomas retires as chief of the technical engineering branch of the Corps of Engineers' North Pacific Division, planning to establish his own office in Seattle as consulting engineer. Head of the branch for the last six years, he shared major responsibility for design of The Dalles, Ice Harbor, Hills Creek and Couger dams.

R. D. Medley will retire July 1 as director of planning for the Kentucky State Highway Department after 36 years of service, but will remain in road-engineering work. Mr. Medley has joined L. E. Gregg & Associations, an engineering firm in Lexington.

Russell T. Branch, chairman of Stone & Webster Engineering Corp., has retired after 45 years of service.

Wheeler H. Rucker, coordinator on navigation problems for the North Pacific Division, Corps of Engineers, retired June 30. He spent 36 years as a waterways engineer on the Columbia River and tributaries. For 17 years he was project engineer for the upper Columbia and Snake rivers and made the original surveys for McNary and Dalles Dams.

Associations

William G. Wharton, Richmond, has been elected president and **S. Logan McConnell,** New Orleans, La., 1st vice president, of the Building Officials Conference of America.

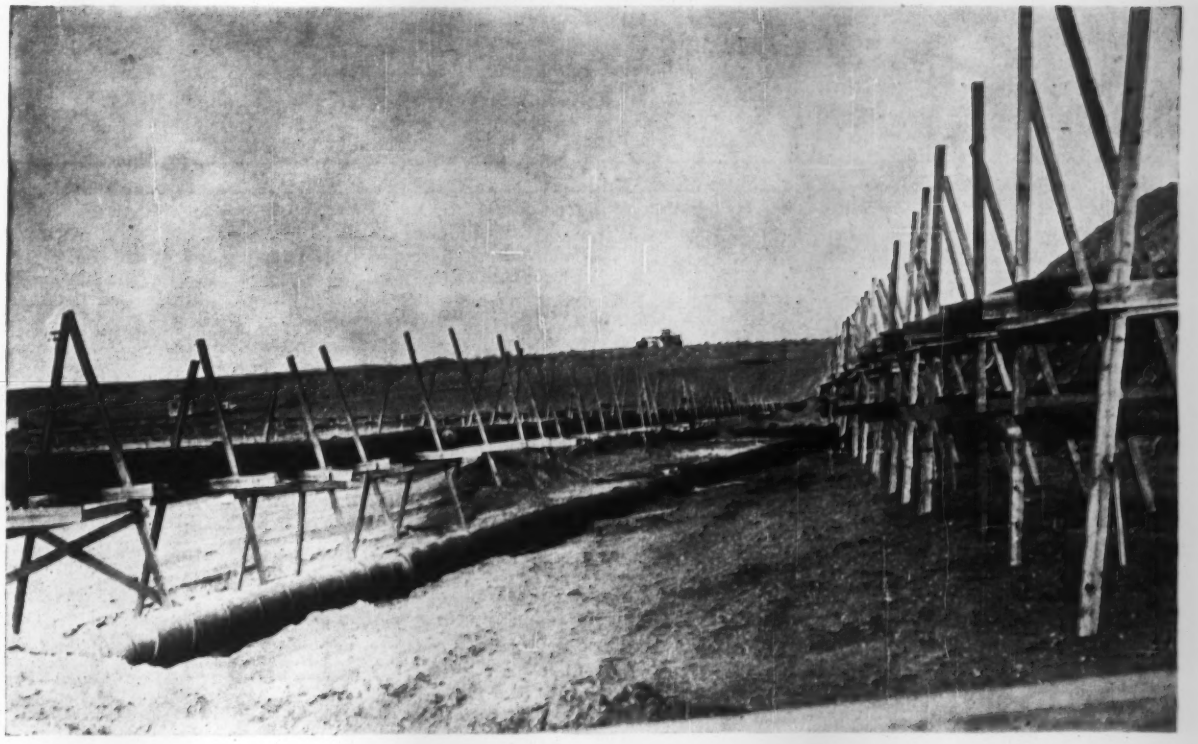
Robert C. Turner has been appointed Director of the Facing Tile Institute, Washington, D. C.

Sherman Smith of Burlington, Iowa, has been elected president of the Iowa Association of Consulting Engineers.

Robert S. Weikel, of Owensboro, is elected president of the Kentucky chapter, American Public Works Association.

William V. Krewatch, engineer with the DuPont Co., is installed as president of the Delaware Society of Professional Engineers.

HAULS AND DELIVERS FILL



. . . Wherever You Want It!

When the job calls for hydraulic placement, you can depend on Naylor Spiralweld for the piping layout that will do the job—faster and at lower cost.

Naylor's exclusive spiral-lock structure creates the one lightweight pipe with the strength and safety required for the rough treatment involved in this service.

Its light weight simplifies handling. Installation is faster, too, with the one-piece Naylor Wedgelock coupling to speed connections. Lines can be knocked down, moved, and re-assembled in minimum time when you use this Naylor pipe and coupling combination.

For full details, write for Bulletins No. 507 on pipe and No. 513 on Wedgelock couplings.

NAYLOR

NAYLOR PIPE COMPANY
1248 East 92nd Street, Chicago 19, Illinois

Eastern U.S. and Foreign Sales Office:
60 East 42nd Street, New York 17, N. Y.

AIR LIFT DREDGES

IMPROVED DESIGN

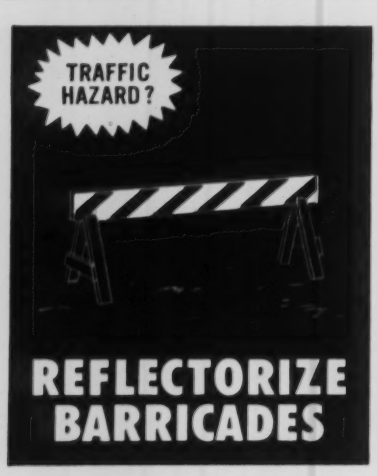
- Designed for your specific job.
- EXCAVATES cofferdams, rivers, harbors, pipe trenches and pulp stock, materials of any specific gravity including gold.
- Will pass stringy masses or solids of pipe size used.
- Easily handled, uses low pressure compressed air.
- NO PRIMING, NO IMPELLERS, NO SHAFTS, NO PACKING GLANDS, bearings, check valves, restrictions.
- Performance equivalent to or better than centrifugal pumps at shallow depths.
- More efficient than centrifugal pumps at deeper depths.
- Will boost loaded centrifugal pump conditions. Will prime hydraulic dredges in seconds.
- Can be used with cutterheads, chain cutters. Integral hydraulic jets dig under cofferdam walers.

Call or write for further information

FRANK HEFLING

P. O. Box 60, Chicago 90, Ill.

Phone ESsex 5-7010



. . . FOR ONLY 35¢

Fast, one-step reflectorization as easy as painting! Hazards reflectorized with 3M's "Codit" Liquid flash brilliant warning at night for safety. Treatment costs a low 17¢ per square foot. Buy supply from your 3M Representative or write 3M Company, Dept. NR-87, St. Paul 6, Minnesota.

Get "Codit" Reflective Liquid in 6 oz. aerosol spray or 4 lb. can or complete safety kit.

PRODUCT OF 3M RESEARCH

Unit Prices

Baltimore Beltway Bridges for Highway and Foot Use

Construction of a four-span steel beam highway bridge and a four-span prestressed concrete beam pedestrian bridge for the Maryland State Roads Commission—Bureau of Bridges, was awarded to Charles W. Williams Associates, Inc. and Forty-First Street Corporation, Baltimore. Their $225,511 bid, which agreed with the engineer's estimate, was 0.18% under the low bid and 17% below the high bid.

The two bridges, both in Baltimore County, are part of the Baltimore Beltway. The pedestrian bridge is 210 ft long, 6 ft wide. The highway bridge is 212 ft long, 42 ft wide.

Bituminous concrete must meet the requirements for specification "B" and concrete blocks must conform to A.S.T.M. specification C-90.

Wages prevailing in Baltimore include: for common labor $1.80 plus 7½¢ health and welfare benefit, for carpenters $2.95 plus 7½¢, for structural ironworkers $3.50 plus 7½ ($3.65 + 7½¢ in June) and for crane and shovel operators $3.40 to $3.55 plus 10¢.

The six bidders include:

1C	Charles W. Williams Associates, Inc. & Forty-First St. Corp., Baltimore, Md	$225,511
2	Case Construction Corp., Mt. Airy, Md	225,913
6	The Somerset Construction Co., Baltimore, Md.	272,024
EE	Md. State Roads Comm-Bur. of Bridges, Baltimore	225,501

Bids: 3-26-57 Items	Unit	Quantity	Unit Prices 1C	2
Excavation class 1 (conti)	cy	650	$1.00	$0.80
class 3	cy	1,300	5.00	5.90
borrow (conti)	cy	4,450	1.00	0.90
Bit conc spec "B", 2" surf crse, bridge deck (conti)	t	110	14.00	10.00
Rem exist pavement	sy	40	1.00	2.50
Subfoundation, drill (conti)	lf	70	1.00	2.00
conc (conti)	cy	95	15.00	18.00
Contingent concrete	cy	50	50.00	65.00
Footing concrete	cy	295	40.00	54.00
Bridge, prest conc, ped, substr	ls	job	4,521	11,000
4-sp stl bm, hwy, substr	ls	job	32,677	42,000
prest conc, ped, superstr	ls	job	45,187	32,000
4-sp stl bm, hwy, superstr	ls	job	102,159	95,500
Railing pipe	ls	job	2,040	3,500
Conc: curb std type A	lf	210	2.50	2.00
sidewalk	sf	1,170	0.75	0.40
Timber barricade	ls	job	360.00	150.00
Slope protection	sy	620	5.00	6.00
Topsoil, furn & place	sy	250	0.45	0.50
Seeding & mulching	sy	250	0.15	0.50
Conc block flume	lf	120	2.00	1.50
Inspector's office type FO-1	ls	job	2,500	700.00
Maint traf pedest bridge	ls	job	2,200	1,600

Completed schedule: Pedestrian bridge, August 15, '57. Highway Bridge, May 15, '58.

Overpass in Denver, Colo. Has Traffic Problems

Two bridges and approaches to carry Alameda Ave. traffic over the Valley Highway and Platte River in Denver drew eight bids. The $514,387 contract to Colorado Constructors, Inc. underbid the nearest competitor by 3.5% and the high bidder by 25%.

The overpass over Valley Highway is 150 ft long and the bridge over the Platte River is 180 ft long. Both are six lanes wide. This project is for the Colorado Department of Highways, Mark U. Watrous, chief engineer, Boyd White, project engineer.

The contractor will have to plan difficult work sequence to provide for traffic movement during construction.

Class A concrete must test at 3000 lb per sq in. Specifications call for 6 sacks of cement per cu yd of concrete. Air entraining is required and a retarding agent is permitted in the deck.

Unit prices ranged from $57 to $87 per cu yd for class A concrete, from $0.125 to $0.14 per lb for reinforcing steel, from $0.215 to $0.25 per lb for structural steel and from $5.40 to $8.25 per lin ft for steel sheet and H piling.

Wages prevailing in Denver include: common labor $2.10 per hour, structural ironworkers $3.10 plus 7½¢ health and welfare benefits, carpenters $3.075, tractor operators $2.20 to $2.80, shovel and crane operators $2.95.

The eight bidders include:

1C	Colorado Constructors, Inc., Denver, Colo	$514,387
2	Gardner Construction Co., Glenwood Spgs., Colo	531,995
8	L. H. Kilgroe Construction Co., Denver, Colo	687,438
EE	Colorado Department of Highways, Denver	491,403

Bids: 3-21-57 Items	Unit	Quantity	Unit Prices 1C	2
Clear & grub	ls	job	$2,000	$2,500
Remove: obstructions	ls	job	6,000	7,500
Platte Riv Dr underpass	ls	job	6,000	15,000
part struct Sta 8	ls	job	3,000	2,000
Adjust manhole RC	ea	2	100.00	100.00
Exc unclassified	cy	34,000	0.60	0.40
rock str	cy	500	5.00	5.00
com str	cy	2,205	5.00	4.00
Mechanical tamp	hr	420	7.00	6.00
Roll: flat wheel tand	hr	60	8.00	10.00
rubber tire roller	hr	30	8.00	5.50
Furn: flat wheel tand	ea	1	100.00	25.00
rubber tire roller	ea	1	100.00	15.00
Wetting	Mgal	100	1.50	1.00
Compaction	cy	34,000	0.08	0.06
Comp sub-base material	t	4,500	0.05	0.05
Overhaul	stay	330,000	0.01	0.015
Overhaul	miy	52,500	0.10	0.13
Sub-base matl cl 1	t	4,500	1.50	1.45
Gravel surf gr C	t	3,900	1.50	1.55
Asphalt road matl MC	gal	5,100	0.20	0.18
RC	gal	300	0.25	0.19
Plant mix asph surf	t	2,130	6.00	5.40
Sand cushion	cy	30	3.00	2.00
Concrete, cl A	cy	2,947	57.00	62.50
Steel, reinf	lb	373,600	0.125	0.13
structural	lb	317,000	0.23	0.215
piling a	lf	2,090	6.00	7.00
sheet pile, 19¾" 36#	lf	10,675	5.40	6.00
Fence, comb wire, MP	lf	1,100	0.35	0.35
Concrete: curb tpI	lf	702	1.70	1.75
comb curb & gutter	lf	1,043	1.95	2.00
sidewalk	sf	3,600	0.35	0.35
Elect conduit jun box	lf	400	1.25	1.00
Steel railing	lf	831	14.00	12.00
Timber grd post	ea	50	5.50	8.00
Drop inlet tp A 3'	ea	1	300.00	350.00
4B 3'	ea	8	250.00	280.00
4C 4'	ea	2	350.00	300.00
CP sewer, 8"	lf	885	5.00	4.50
RCP sewer, 15"	lf	1,020	8.00	7.50
18"	lf	282	8.00	7.10
24"	lf	392	8.00	8.00
30"	lf	780	30.00	26.00
MH, type 1A, 5 ft	ea	2	200.00	170.00
10 ft	ea	1	250.00	220.00
13 ft	ea	1	300.00	280.00
14 ft	ea	1	350.00	320.00
19 ft	ea	1	400.00	450.00
21 ft	ea	1	600.00	600.00
RCP, Flare end 15"	ea	2	30.00	25.00

Time to complete: 180 calendar days. Liquidated damages: $75 per day.

a 12" BP 53# or 12¾" OD 7 ga

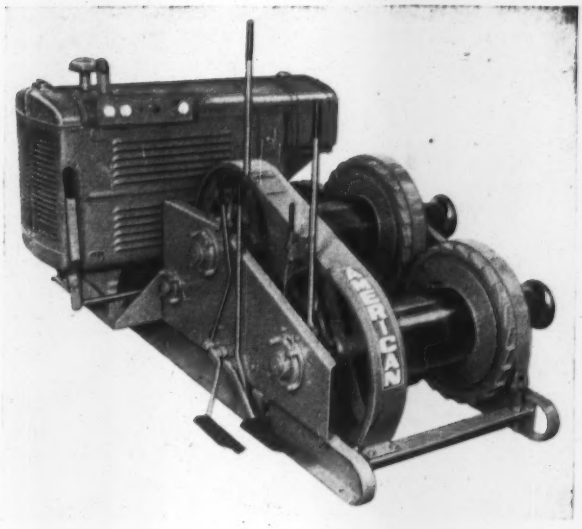
HOIST DOES DOUBLE DUTY ON REMODELING JOB!

Remodeling this 10-story Seattle office building to match a new wing meant the American Hoist working on the job had a two-way load. First, 200 tons of debris came down, then 200 tons of new material went up!

First step for the contractor, Henrik Valle Construction Company was removing a 48″ terra cotta cornice and an eight-foot parapet. By reversing the position of a rub nose bucket on the elevator, it automatically dumped into trucks waiting at the bottom of the 156-foot tower. A 75% time saving in debris handling resulted.

Stopping the loaded bucket after a 10-story drop really tested and proved the American Hoist's powerful brakes! Fast, smooth, positive stops resulted from the big contracting band friction brakes. Going up on express runs to the roof, the American Hoist speeded lifting of 200 tons of new material. Smooth gripping contracting band friction clutches take hold without shock—start the load up fast!

Reliable, economical hoist performance is a vital part of a job's success. On the big jobs—the long haul, continuous operation assignments, rugged American Hoists are, by far, the first choice.

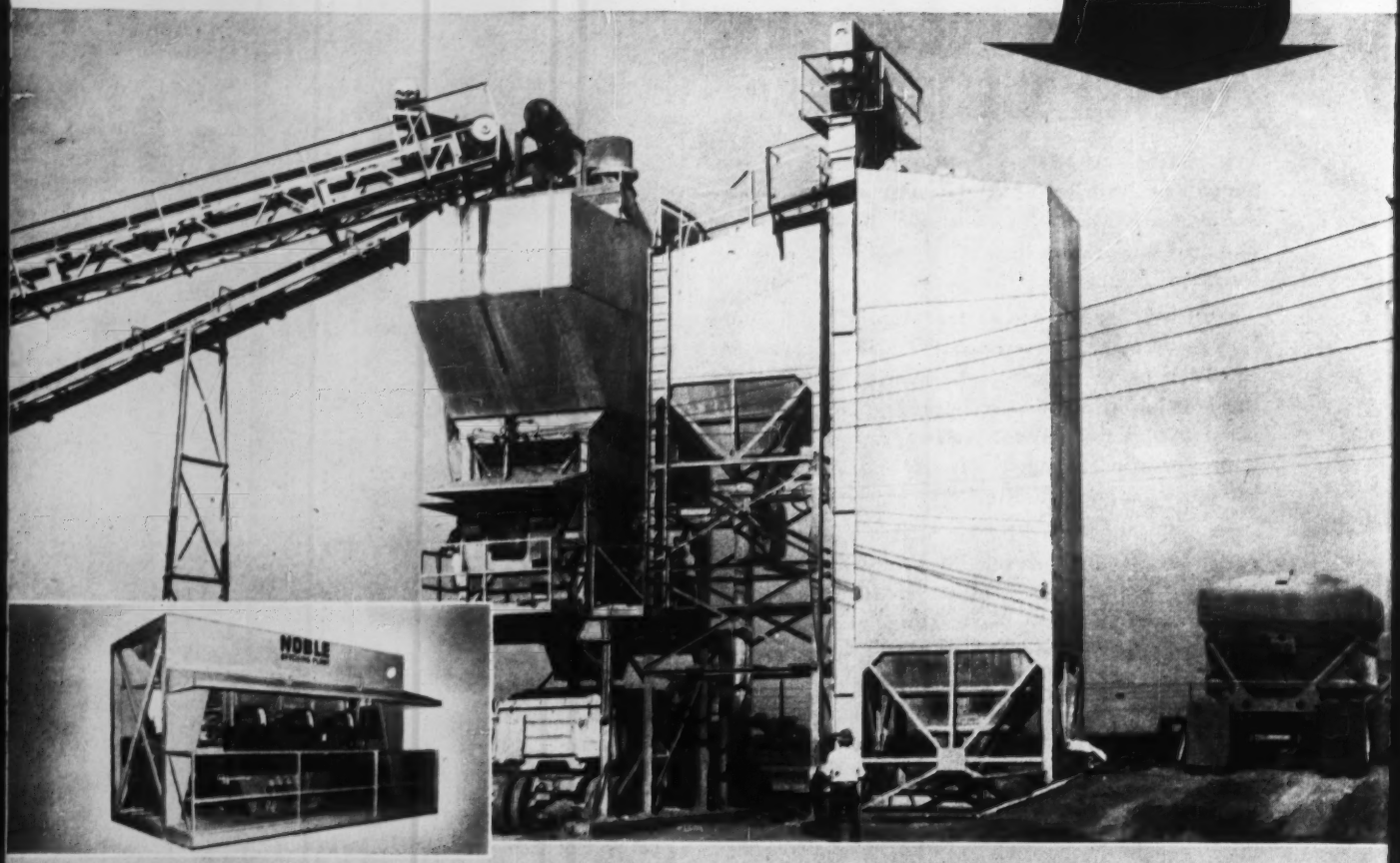


On every job where dependability and peak performance are demanded, you'll find Americans at the bottom of the tower! Ask owners and operators how they like them—and have your nearest American Distributor show you complete specifications on a line that starts with capacities of 3,000 pounds single line pull.

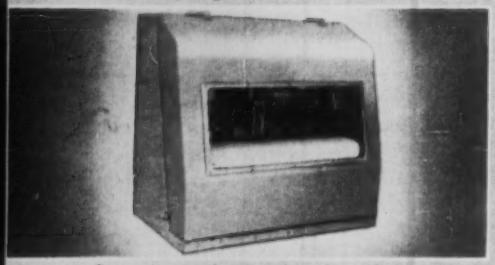
Rated at a capacity of 5,000 pounds single line pull, the American Model 50-B General Purpose Hoist is available with single, double and double drum with swinger. Choice of gasoline or electric power.

AMERICAN HOIST
and Derrick Company
Saint Paul 7, Minnesota

NOBLE TRIPLE BATCHER produces one operator in 1 stop or



Bin center section can be truck-hauled without removing weigh hoppers, operator controls or any other components. All electrical switches are mounted in this unit and connections are made by simple twist-lock couplings.



3 pen recorder, optional equipment, produces record of each material as required by Corps of Engineers specifications. Adaptable to 1 or 2 stop set-up.

✓ Weighs 3 materials for a single batch at one time! *(sand, coarse aggregates, cement)*

✓ Batches accurately to rigid specifications!

✓ Supplies 2 or 3 dual drum pavers!

Lowest erection costs. Noble comes completely equipped ready for batching. Factory assembled sections, all within legal width for highway transport, are quickly erected on timbers or concrete.

NOBLE CONCRETE BATCHING PLANTS

WRITE FOR CIRCULAR

THE NOBLE COMPANY • 1860 - 7TH ST., OAKLAND 20, CALIF. • TEMPLEBAR 2-5785

Branches: 20950 Center Ridge Road, Cleveland 16, Ohio. EDison 1-3426
518 First Ave. North, Seattle, Wash. MUtual 4878
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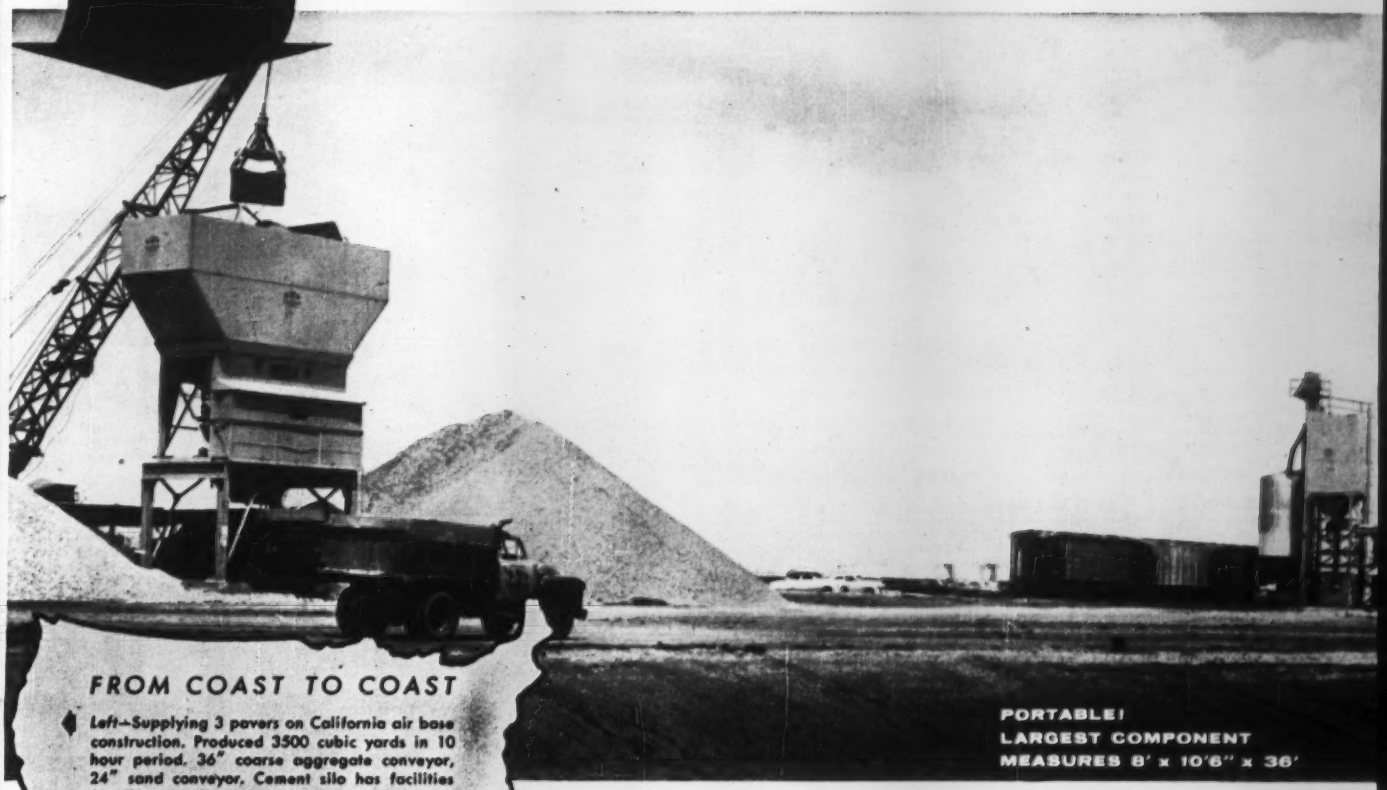
International Sales Agent: Frazar International Corp., San Francisco

over 300 yards per hour with 2 stop set-up

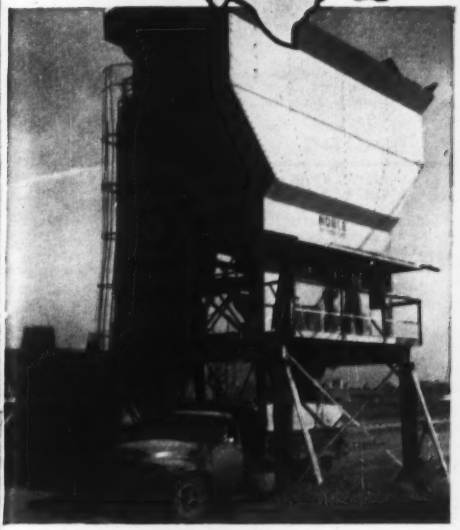


PORTABLE!
LARGEST COMPONENT
MEASURES 8' x 10'6" x 36'

FROM COAST TO COAST

Left—Supplying 3 pavers on California air base construction. Produced 3500 cubic yards in 10 hour period. 36" coarse aggregate conveyor, 24" sand conveyor. Cement silo has facilities for direct loading of cement spreader trucks.

Below—On New England paving job.



For short stretch paving, come back work, tunnels, bridges, use...

NOBLE-MOBILE Batching Plant on Wheels

Convair Aircraft taxiways

Bureau of Reclamation siphon, Othello, Wash.

Ohio highway paving

Batches at the job site where hauls are shorter and profits longer. 100% complete plant. 65 to 125 yards per hour. Scooploader, crane or conveyor loaded. Supplies transit mix, dry batch or premix.

DISTRIBUTORS: BIRMINGHAM, ALA., Equipment Service Co., Inc. • LOS ANGELES, CALIF., Smith-Booth-Usher Co. • DENVER, COLO., Western Machinery Co. • MIAMI, FLA., Neff Machinery, Inc. • CHICAGO, ILL., Arrow Contractors Equipment Co. • INDIANAPOLIS, IND., Manwaring Machinery Co., Inc. • CEDAR RAPIDS, IOWA, James W. Bell Co., Inc. LOUISVILLE, KY., Emmett C. Watson Co. • BALTIMORE, MD., General Supply & Equipment Co. • BOSTON, MASS., Hedge & Mattheis Co. • DETROIT, MICH., R. G. Moeller Co. ST. PAUL, MINN., Borchert-Ingersoll, Inc. • KANSAS CITY, MO., Funkhouser Machinery Co. • ST. LOUIS, MO., George F. Smith Co. • DUNELLEN, N. J., Miller Equipment Co. CHARLOTTE, N. C., Spartan Equipment Co. • CLEVELAND, OHIO, Wepco Equipment Co. • OKLAHOMA CITY, OKLA., Herd Equipment Co. • PORTLAND, ORE., Clyde Equipment Co. • PHILADELPHIA, PA., Furnival Machinery Co. • PITTSBURGH, PA., Equipment & Supplies, Inc. • NASHVILLE, TENN., Peterson Machinery Co. • DALLAS, TEX., North Texas Equipment & Supply Co. • EL PASO, TEX., Border Machinery Co., Inc. • SAN ANTONIO, TEX., Contractors Machinery Co. • WACO, TEX., Richards Equipment Co. • SALT LAKE CITY, UTAH, Arnold Machinery Co., Inc. • SEATTLE, WASH., Star Machinery Co. • SPOKANE, WASH., Intermountain Equipment Co. • CASPER, WYO., Studer Tractor & Equipment Co., Inc. • CALGARY, ALB., Precision Machinery & Foundry Co., Ltd. • VANCOUVER, B. C., Westcoast Equipment Co., Ltd. • WINNIPEG, MAN., Huggard Equipment Co., Ltd. TORONTO, ONT., Ontario Equipment & Supply, Ltd. • MONTREAL, QUE., Laurentide Equipment Co., Ltd.

Materials and Labor Prices — Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate, Ready-mixed Concrete, Asphalt: Last, July 4; Next, Aug. 8
- Iron and Steel Products, Pipe: Last, July 11; Next, Aug. 15
- Wood Products, Glass, Explosives, Chemicals: Last, July 18; Next, Aug. 22
- Clay Products, Lime, Plaster, Paint, Roofing: Last, July 25; Next, Aug. 29

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$149.90p	$149.90p	$299.80p	$334.55p	.....	.....	$30.50p	$32.70p	$23.50	$24.50	$.....
Baltimore	203.00	217.00	406.00	485.50	596.00	681.00	36.00k	41.00k	33.00	22.00	.....
Birmingham	135.00p	152.00p	.....	303.00p	376.00p	465.00p	27.00ff	38.00gg	35.02	22.30	26.33
Boston	217.00†	231.56†	434.00†	520.50†	.....	.....	41.50p	46.50p	39.20†	31.20†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	30.00	32.00	38.00	35.20e	.....
Cincinnati	205.00j	225.00j	296.00jdd	213.00j	288.00j	314.00j	45.75j	47.00j	30.04j	26.04j	30.04j
Cleveland	209.00	223.00	.....	475.00	.....	.....	43.00	47.00	31.00	26.00	.....
Dallas	152.00	162.00	277.50	337.50	414.75	513.50	25.75	45.00	41.60	25.08	27.65
Denver	.....	.....	.....	.....	.....	.....	36.00	47.50	46.00p	42.00p	46.00p
Detroit	253.00	275.00	506.00	.....	616.00	704.00	44.00p	44.50p	38.00	30.10	.....
Kansas City	158.00	158.00	312.00	312.00	400.00	500.00	33.00	33.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	32.50ij	.....	34.00	34.00	35.00
Minneapolis	188.00p	210.00p	429.00p	210.00pw	.....	.....	43.00*p	52.50ii	46.00bbr	36.00bbr	48.00bbds
Montreal	170.00aq	178.00au	325.00au	270.00	400.00	.....	42.00	49.00	39.00	22.00	13.25u
New Orleans	186.00	186.00	380.00	380.00	.....	.....	40.00	55.00	44.00	32.00	32.00
New York	158.10h	168.60h	231.70ch	233.90hn	.....	.....	44.00	.....	37.00	35.00	.....
Philadelphia	169.00	180.20	337.90	405.00	.....	.....	30/34	38/42	27.60	25.60	3.17m
Pittsburgh	147.50	157.75	295.00	335.00	435.00	500.00	39.00	46.00	32.00	28.00	.....
St. Louis	179.00p	203.00p	375.00p	500.00p	459.00	621.50	43.00l	41.50	0.95aa	.80aa	1.35i
San Francisco	156.85*	177.10*	235.30dd*	.....	.....	.....	42.50*	42.50*	27.75	27.75	30.50i
Seattle	225.00p	250.00p	450.00p	250.00pw	.....	.....	43.00	57.00	52.00bb	40.00bb	4.50mbb
Toronto	146.00	157.20	289.00	234.00f	.....	.....	30.00	63.00	36.00	33.50	31.50

*† F.o.b.yard Roxbury. *a Smooth. *b Per 50 lb. bags. *c 8 x 12 x 12 in.-3 cell. *d Pulverized hot. *e 5% 10th following month. *f 8 x 8 x 12. *g 8½ x 8 x 12. *h F.o.b trucks, job site N.Y.C *i 80-lb. sacks. *j Truck load or over. *k $1.00 discount. *l Red face. *m Per bbl., 180 lb. *n 7¾ x 7¾ x 12. Soeed tile. *o mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra. *r Not used; earthquake danger. *t 5½ x 8 x 11¼. *u Tax exempt. *v Sand lime. *w 5x8x12. *y Stacked. *z Pebble; 80 lb. sack. *aa 50 lb. sack. *bb lb LCL. *dd 6 x 12 x 12. *ff 80% common. *gg Rough. $40.00 Smooth. *ii Chi common. § F.o.b. yard. ** F.o.b. plant Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases in oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES: Carload lots f.o.b. factory Rolls, slate surfaced, 65-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$16.50	$30.125	$3.50	$3.86	$3.31	$3.39	$2.20	$2.62	$0.67	$57.75
Baltimore	16.25	29.75	2.75	4.25	3.35	2.78	4.25	4.25	.48	50.18
Birmingham	16.50	30.125	3.90	3.40	....	3.37	2.49ii	2.49ii	.87ff	48.00ee
Boston	16.25	29.75	....	....	....	3.63gg q	2.83oq	2.83oq	.45q	56.00q
Chicago	16.25	29.75	....	....	....	3.69§u	2.98§o	2.98§o	48.00§bb	55.70§
Cincinnati	16.25	29.75	....	....	....	2.92	2.50	2.53	.618y	53.96
Cleveland	16.25	29.75	2.3447pp	2.5132pp	2.8144pp	3.30q	2.54o	2.54o	.454y	47.00gg
Dallas	16.50	30.50	....	3.13B	....	3.00u	3.00o	3.00o	.464	65.00kk
Denver	16.75	30.25	3.90	5.15	3.04	3.11	2.30o	2.45o	.48ff	47.00
Detroit	16.25	29.75	2.35	3.25	2.35	3.30	2.54f	2.409f	58§ff	47.30
Kansas City	16.25	30.50	3.94	3.38	2.96	3.71ii	2.85o	2.85o	.684y	.....
Los Angeles	16.25	30.00	3.30n	4.50n	4.20n	3.20n	2.15en	l	.70ny	l
Minneapolis	16.25	29.88/29.75	....	....	....	2.99	2.41hi	2.41hi	.442i	48.00r
Montreal	.....	.....	5.03Dff	5.94Eff	4.65Fff	5.40	4.65f	4.65f	1.60	....
New Orleans	....	....	....	....	....	2.74	2.18	2.43	0.689	.....
New York	16.25	29.75	....	....	....	3.15	2.43o	2.43o	.444s	t 50.00*
Philadelphia	16.25	29.75	3.60	3.40/3.65	3.50/4.60	3.00/3.30	2.54o	2.54o	37/.45	48.00
Pittsburgh	16.25	29.75	3.10	3.38	3.68	3.37e	2.59	....	.45	54.00Q
St. Louis	16.25	29.75	....	....	....	3.75iie	2.90kk	2.90kk	.45y	60.00
San Francisco	16.25	30.00	3.10	4.30	3.50	2.69	2.08aa	3.10	.47yy	54.00
Seattle	16.25	30.25	3.47ee	4.19ee	....	3.72qee	3.22kee	....	.50ee	47.20ee
Toronto	.....	.....	....	....	....	4.45	4.10e	4.65e	1.70j	88.00A

*† Delivered. * Note: Red lead in oil 50¢ higher than white lead in oil. *a Red lead prices change frequently due to oig lead price changes. *b U. S. War Dept. Spec 3-49A. *c ASTM Spec. D268-31. *d 80% minimum ferric oxide. *e 15 lb. *f Per 432 sq. ft. *g F.o.b.yard, Roxbury. *h Per roll, 65 lb. *i Net carload lot prices; Minneapolis and vicinity. *j 45 gal containers. *k Per cwt. *l Not used. *n F.o.b. city. *o Per 60-lb. roll. *p 6-drum, 50 gal. ea. *q Per 90-lb. roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax, add 5% mun. & prov. tax. *u Per 90-lb. square. *v Per ton. *w Price to contractors $1.25 less. *x Mineral surfaced. *y 55-gallon. container. *z Drums. *aa 15 lb., 324 sq ft roll. *bb Roofers coating and cement; *cc LCL truck delivery. *ee Asphalt pitch in 100 lb. package. *ff 5-gal. drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per roll. *jj Asbestos roof coating. *A 400 lb barrels. *B ASTM Spec D-982-49. *D Std. Black. *E Ready-mixed. *F Over 80% ferric oxide. *G 550 lb. ** Aver. wt. approx. 425 to 550 lbs. drums.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	PLASTER‡ Gauging per ton	VERMICULITE‡ Home Insulation pellets	VERMICULITE‡ Plaster aggregate	VERMICULITE‡ Concrete Aggregate Untreated per bag of 4 cu ft	PERLITE‡ Plaster Aggregate	PERLITE‡ Concrete Aggregate Untreated	ALUMINUM SHEET†† Flat .102" th 36"x96" & 48"x144" per lbjt	ALUMINUM SHEET†† Corr roof .032" th 35"x12' per sho	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96-120" per cwthh	STAINLESS STEEL† SHEET-TYPE 302g 28 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ¾"b	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ¾"o
Atlanta	$31.00	$36.00	$1.55a	$1.65a	$1.80d	$1.65	$1.65	$0.422n	$8.97n	$61.44n	$67.50	$16.74f	$23.41f
Baltimore	22.85	33.25	0.95	1.15	1.15	1.15	1.65	0.431	0.489r	56.25	64.25	0.1674	0.2341
Birmingham	33.00	39.00	1.55	1.55	1.80l	1.55	1.55	0.444	10.02	67.34	76.09	0.2025	0.2484
Boston	22.00	30.00	1.40	1.40	1.45	1.45	1.50	0.444	28.50p	65.39dd	71.77ddff	0.1608	0.2249
Chicago	26.80	26.80	1.55	1.60	1.60l	1.50	1.50	0.474x	9.805a	62.65aee	71.15aee	0.1608	0.2249
Cincinnati	28.00*	28.00*	1.75	1.75	1.75	1.85	1.90	0.434	9.56	65.03	71.28ff	0.1668	0.2034
Cleveland	28.00	43.00	1.15ii	1.15ii	1.24l	1.45	1.45	0.44aa	8.66	67.83	76.58	16.08f	22.49f
Dallas	30.00	32.00	1.05	1.21	1.37l	1.21	1.32	0.474	0.5100r	64.09	73.05	0.200	0.2810
Denver	25.00	25.00	1.50	1.40	1.50	1.40	1.45	0.444	9.80	65.30gg	73.80gg	0.2006	0.2810
Detroit	25.00	25.00	1.28	1.32	1.41	1.45	1.45	0.455a	9.235a	65.00a	73.50a	16.74f	23.58f
Kansas City	30.00	35.00	1.29	1.45	1.48l	1.40	.....	0.422	10.95	67.14	75.81	16.08f	22.49f
Los Angeles	26.20	27.20	1.25ii	1.15k	1.25	95	1.10	0.484	9.96d	64.45	72.95	0.1674	0.2341
Minneapolis	32.00	32.00	1.55	1.60	1.80	1.40	1.40	0.481	13.50e	66.21	74.71ff	0.1608	0.2249
Montreal	27.60	35.60	1.20	1.40	1.50	1.15e	1.15e	0.437	9.92	66.50	.....	0.228	0.287
New Orleans	32.00	45.00	1.25	1.25	1.25	1.25	1.25	0.464	8.303	62.04	70.84	0.1899	0.2658
New York	24.00	30.00	1.35	1.30	1.50	1.40	1.40	0.441a	9.46ad	68.55	77.30	16.08f	22.49f
Philadelphia	23.25	32.00	1.35	1.35	1.40l	1.05	1.05	0.444ae	9.46a	53.23a	60.98a	18.57f	26.09f
Pittsburgh	28.00	28.00	1.60	1.50	1.35	1.50	1.65	0.524	9.56	63.41	76.18	0.2045	0.2572
St. Louis	29.00	40.00	1.35	1.60ff	1.55	1.60	1.65	0.434	9.80	70.86	77.36y	16.08fm	22.49fm
San Francisco	27.85	32.00	1.20	1.20	1.30	1.20	1.30	0.49	9.00	64.95	73.45	0.1608	0.2949
Seattle	41.00	44.00	1.45	1.25k	1.85l	1.50k		0.489	9.964	63.00	83.00	0.1674	0.2341
Toronto	28.50	45.50	1.20	1.30	1.45l			0.4095	24.00ae	73.75	86.50	0.2768	0.3347p

‡ truckiots, delivered † fob warehouse * fob city *a delivered *b ½" O.D. *c ⅝" O.D. *d 0.100"th *e 34" x 80" sheet *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled; 2B finish *h 15M lb lots *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob mill, fr allow *p 100 sq ft *r per lb. *s 30 lb bag *t 36" x 96; 10.81 lb /sh; 48" x 144"; 21.7 lb /sh *u 19.31 lb /sh *v fob plant *w 48" x 144" *x 100th *y 27 gauge *aa 16M lb & up *dd add $0.75 cwt boxing *ee 4 tons & up *ff 26 ga *gg add $2 cwt boxing; $0.75 /cwt on skids *hh Theoretical wt for 48" × 96"; 60.4-lb. per sh. *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt: 19.7-lb per sh.

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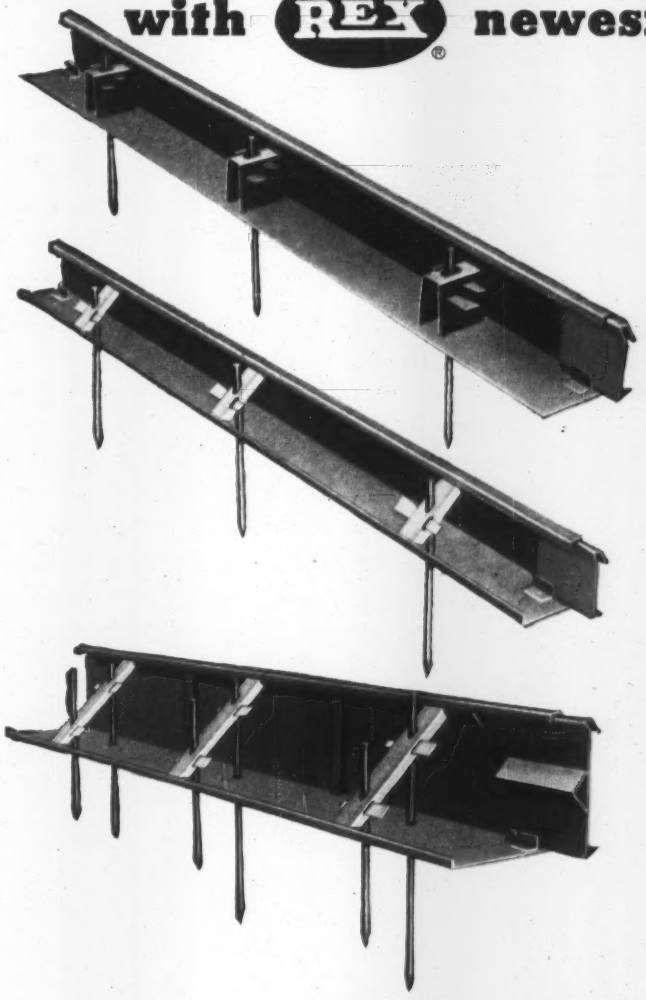

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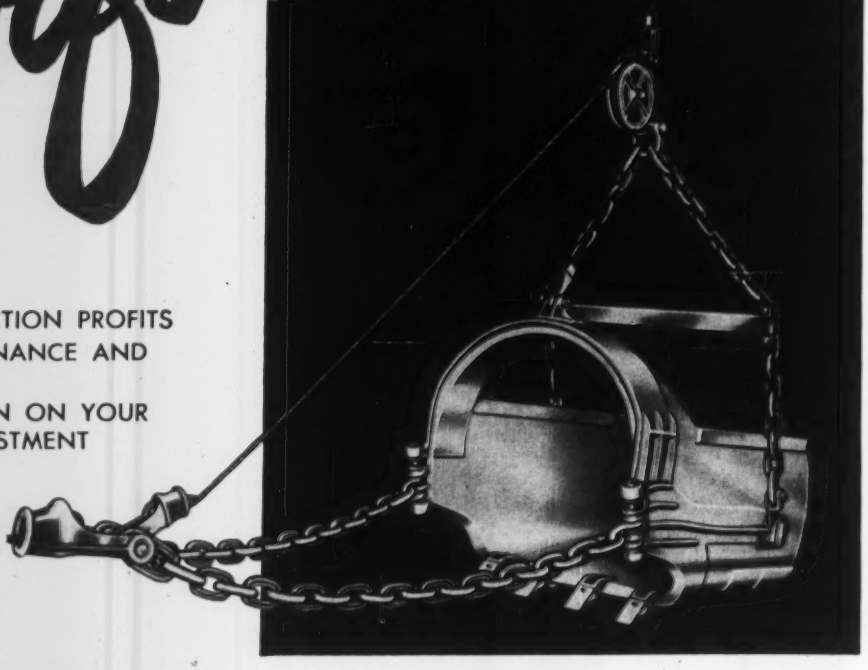

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J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

N. H., Lancaster—HOSPITAL—BA 8/1—Beatrice D. Weeks Memorial Hospital, Middle St., hospital addn. $345,000. Plans deposit $50, refundable. Hudson & Ingram, 15 South Main St., Hanover, archts. CD 12/6.

BUILDINGS—BA

† **Mass., Falmouth**—SCHOOL—BA 7/30—U. S. Regional Eng., Housing & Home Finance Agency, 346 Broadway, New York, N. Y. Mass. 58-C-FED-4-A8, elementary school, Otis Air Force Base, $600,000. Plans deposit $7.50, refundable. Walter M. Gaffney Assoc., West Main St., Hyannis, Mass., archt. CD 5/27, under CA.

Conn., Norwalk — EDUCATIONAL — BA 7/31 — Norwalk Methodist Church, 724 West Ave., educational bldg., Norwalk Methodist Church. $350,000. Jesse J. Hamblin, 1188 Main St., Bridgeport, archt. CD 10/23.

Conn., Norwich—PHYSICIANS' RESIDENCES—BA 8/14—State P. Wks. Dpt., 165 Capitol Ave., Hartford, Proj. BI-K-122, 6 physicians' residences, Norwich State Hospital. Plans deposit $10. CD 2/28.

Conn., Willimantic—STUDENT UNION—BA 8/14—State P. Wks. Dpt., 165 Capitol Ave., Hartford, Proj. BI-R-142, student union and women's dormitory Willimantic State Teachers College, $405,000. Plans deposit $20. Kane & Fairchild, 834 Asylum Ave., Hartford, archts. Jerome F. Mueller, 15 Lewis St., Hartford, consult. engr. CD 4/19.

BUILDINGS—SLC

▲ **R. I., Middletown**—SHOPPING CENTER—Kempenaar Real Estate Co., c/o Robert Kempenaar, Evergreen Ave., soon lets contract 90,800 sq. ft. shopping center, $1,000,000. Aquidneck Shopping Center, c/o William O'Rourke, archt., 90 Union St., Warwick, R. I. CD 7/9.

HEAVY CONSTRUCTION—LB & CA

† **U. S. Eng.**, 150 Causeway St., Boston, Mass., cancelled bids to have been opened July 16, receiver and transmitter bldg., Air Force Station, Inv. 19-016-57-222. BUCKS HARBOR, ME., $125,000-$150,000. CD 6/27.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord, Bids opened July 5,

Scavone Constr. Co., 38 Hope Ave., Worcester, Mass., LB $170,824 (7 bidders) surface treated gravel 1.035 mi. NH 31, Greenville-Wilton. CD 7/1.

Manchester Sand & Gravel & Cement Co., P. O. Box 536, Manchester, N. H., LB $106,745, road imprv. North State St., CONCORD, N. H. City, City Hall, Concord, N. H. CD 3/14.

† **Perini Corp.**, 73 Montwait Ave., Framingham, Mass., LB $966,278, major repairs to runways 11-290, IFB-19-604-57-180, L. G. Hanscom Air Field, BEDFORD, MASS. U. S. A. Headquarters Air Force, Cambridge Research Center, L. G. Hanscom Air Field, Bedford, Mass. Bids July 12, CD 7/11.

RHODE ISLAND—State R. I. & Prov. Plants, Div. Purchase, State House, Providence, Bids opened 7/3,

Munroe-Langstorth, Inc., 1390 Providence Hy., Norwood, Mass., LB $792,008, Bid RI Contr. No. 5755-FA Proj. No. 1-01-(16), Bridges 518, 519 and 520, steel and concrete, prestressed concrete, interstate Hy.-Quaker Lane-Big River Section, Warwick, West Warwick, East Greenwich and West Greenwich. CD 6/24.

CONNECTICUT—State Hy. Dpt., 165 Capitol Ave., Hartford,

Webster & Webster, Inc., 1366 Main St., East Hartford, Conn., CA $630,780, railing and fencing on Conn. Turnpike, Proj. 210-07, cities of Fairfield, Bridgeport, Stratford and Milford. Fairfield and New Haven Counties. Bids June 10, awarded July 8. CD 6/15, under LB.

† **E. B. McGurk, Inc.**, 355 Barbour St., Hartford, Conn., LB $149,997, (2 bidders) pavement and utilities Nike Batteries, Hartford, CONNECTICUT. U. S. Eng., 150 Causeway St., Boston, Mass.

C. H. Nickerson & Co., Hayden Hill Rd., Burrville, Torrington, Conn., LB $76,514 (5 bidders) outdoor hockey rink, LAKEVILLE, CONN. Hotchkiss School, Lakeville, Conn. Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, archts.

Beard Constr. Co., Shelton Ave., Shelton, Conn., CA $244,097 sewers, Elmhurst, SEYMOUR, CONN. Town, Town Hall, Seymour, Conn. Awarded July 5. CD 6/9/56.

† **Oneglia & Gervasini, Inc.**, Casson Ave., Torrington, Conn., LB $281,075 (3 bidders) flood protection project, East Branch of Naugatuck River, TORRINGTON, CONN. U. S. Eng., 150 Causeway St., Boston, Mass. Green Engineering Affiliates, Inc., 84 State St., Boston, Mass., engrs. CD 4/29.

BUILDINGS—LB & CA

▲ **Bank Building & Equipment Co.**, 9 and Sidney Sts., St. Louis, Mo., CA Est. $1,000,000. BANK, Warren and N. Main Sts., CONCORD, N. H. Concord National Bank & Concord Savings Bank, Concord, N. H. CD 12/6.

Caron Constr. Co., Inc., 161 Baker St., Manchester, N. H., CA Approx. $375,000. CHURCH, Lincoln and Front Sts., EXETER, N. H. St. Michael's Catholic Church, c/o Diocese of Manchester, Chancery Office, 145 Lowell St., Manchester, N. H. Bids June 25. CD 6/21.

R. E. Bean Constr. Co., 29 Island St., Keene, N. H., CA $300,000. 25,000 sq. ft. MFG. PLANT addn., KEENE, N. H. Miniature Precision Bearings, Inc., Precision Park, Keene, N. H. Anderson, Nichols & Co., 150 Causeway St., Boston, Mass., engrs.

Davison Constr. Co., Inc., 1306 A Elm St., Manchester, N. H., CA $200,000. PLANT EXPANSION, MANCHESTER, N. H. Marion Electrical Instrument Co., Grenier Field, Manchester, N. H.

The MacMillan Co., 28 Mechanic St., Keene, N. H., LB $499,500. HOSPITAL, NEW LONDON, N. H. New London Hospital, Bd. Trustees, c/o Admin., New London, N. H. James H. Ritchie & Assoc., 135 Clarendon St., Boston, Mass., archts. Bids July 2. CD 6/11.

▲ **City of Boston, Dpt. School Bldgs.**, 26 Norman St., Boston, Mass., rejected bids July 11, elementary school, Martin Dist., Roxbury, BOSTON, MASS. $1,315,000. Will re-advertise. CD 6/28.

▲ **Donatelli Bldg. Co., Inc.**, 118 Cottage St., North Providence, R. I., CA $1,034,888, est. $1,000,000, HIGH SCHOOL, Child St. and Asylum Rd., WARREN, R. I. Town, School Comm., Warren, R. I. Bids June 24. CD 7/1, under LB.

E. & F. Constr. Co., 94 Wells St., Bridgeport, Conn., CA $115,000. FACTORY alteration, BRIDGEPORT, CONN. Morland Inc., 740 Union Ave., Bridgeport, Conn. Awarded July 6.

South Windsor Heights, Inc., Graham Rd., South Windsor, Conn. Owner Builds, $770,000. HOUSING DEVELOPMENT incl. 76 houses, on 4 roads, Prospect St. GLASTONBURY, CONN.

Michael E. Smith, Russell Ave., Orange, Conn., CA $160,000. 1 story, 13,500 sq. ft., masonry WAREHOUSE and OFFICE, First Ave., WEST HAVEN, CONN. Art-Ryte Floor Covering Co., 20 Rose St., New Haven, Conn. CD 6/11.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England — **Middle West**
Middle Atlantic — **West of Mississippi**
South — **Far West**

PROPOSED WORK
Water Supply — **Public Buildings**
Sewers, Waste Disposal — **Mass Housing**
Bridges — **Commercial Buildings**
Streets & Roads — **Industrial Buildings**
Earthwork, Waterways — **Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. J., Cresskill—BA 7/31—Cresskill Borough, installing sewers. $835,000. Lee T. Purcell, 36 De Grasse St., Paterson, engr.

▲ **N. Y., Mineola**—BA 8/13—County Executive, Nassau Co., Old County Court House, sewers in Island Park-Oceanside Area, $3,800,000. sewage pumping station on Long Beach Rd., north of Barnum Channel, Oceanside. CD 6/13/55.

BUILDINGS—BA

Pa., Homer City—SCHOOL—BA 7/30—Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, Junior-Senior High School, for Laura Lamar Joint School Bd. Plans deposit $100. M. B. Ehrlich & Ezekiel Levinson, 1 N. 13th St., Phila., archts.

Pa., Lima—SCHOOL—BA 7/31—Central Delaware County Joint School Auth., Lima, Roosevelt Elementary School addn., paving and sewage disposal system, $643,209. Garner & White, 10 S. 18 St., Phila., archts. Keast & Hood, 2031 Chestnut St., Phila. engrs. CD 6/4, under LB.

Pa., Mercersburg—SCHOOL—BA 8/1—Montgomery Twp. School Dist. Auth., Mercersburg, elementary school on Rte. 75, Montgomery Twp., south of here. Plans deposit $30. E. G. Good, Jr., 904 N. 2nd St., Harrisburg, archt.

Pa., Palmyra—SCHOOL—BA 8/6—Palmyra Area Joint School Auth., Railroad and Cherry Sts., Forge St. Elementary School, S. Forge St. Plans deposit $35. Lawrie & Green, 521 N. Front St., Harrisburg, archts.

N. Y., Binghamton—MOTEL-HOTEL—BA 8/7—Sheraton Corp. of America, 470 Atlantic Ave., Boston, Mass., 250x50 ft., rein.-con., 187 room hotel-motel. $350,000. Samuel Glaser Assoc., 234 Clarendon St., Boston, Mass., archts. CD 4/30/56.

▲ **Pa., Souderton**—SCHOOL—BA 8/6—Souderton School Bd., Souderton Junior and Senior High School addn., alterations. $2,500,000. S. W. Herring, and H. F. Everett & Assocs., Commonwealth Bldg., Allentown, engrs. CD 5/2/56.

▲ **N. Y., New York**—SCHOOL, Etc.—BA 8/14—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for Junior High School 22, and Hamilton Fish Park Branch Library, Columbia, Sheriff and E. Houston Sts., Manhattan Boro., Total est $4,574,000. Plans deposit $25 for general; $10 each of others. CD 7/8, under LB and CD 1/7.

Pa., Pittsburgh—CHILDRENS HOME—Protestant Home for Children Inc., 1940 Perrysville Ave., soon lets contract 1 and 2 story, brick, childrens home, Perrysville Ave., $600,000. Schill & Deeter, Gateway Center, Pittsburgh, Pa., archts.

BUILDINGS—SLC

Pa., Harmarville—WAREHOUSE—Stanton Steel Corp., 50-26th Pittsburgh, soon lets contract, 1 story, 20,000 sq. ft. steel, brick, block warehouse. $200,000. Hyman Rosenberg, 812 Berger Bldg., Pittsburgh, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Allis-Chalmers Mfg. Co. & S. Morgan Smith Co.**, 1126 S. 70 St., Milwaukee, Wis., LB $20,666,200 award contingent on Congress permitting construction, Contr. NP-3, Spec. PA-N-24002, furnishing, del. 200,000 hp. hydraulic turbines for Lewiston Power Plant, Niagara Power Project, NEW YORK, The Power Authority of State of New York, The Coliseum, 10 Columbus Circle, New York 19, N. Y. Bids July 15. CD 5/21.

The Port of New York Authority, 111 Eighth Ave., New York 11, N. Y., cancelled bids to have been opened July 2, Contr. BO 150.012, Pier 1 fill, Brooklyn-Port Authority Piers, BROOKLYN, N. Y. CD 6/28.

W. H. Greene, Grand Blvd., Westbury, N. Y., LB $779,375 (6 bidders) impvs. Jerusalem Ave. from Uniondale Ave., Uniondale, easterly to Newbridge Rd. North Bellmore, Town of Hempstead by paving, curbs, sidewalks and drainage approx. 15,100 ft. MINEOLA, N. Y. Comr. P. Wks. Old County Court House, Mineola, N. Y. Bids July 3. CD 11/16.

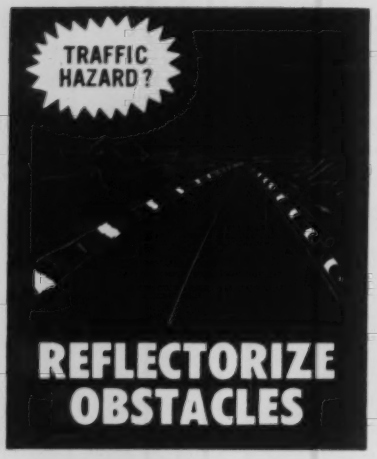
▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Pa.—Kim Co., Box 127, Harrisburg, Pa., CA $3,398,687, conversion divided by to limited access; parallel roads; 8 bridges, T.R. 111, Conewago, Newberry and Fairview Twps., York Co.;

Pa.—Seigmund Gavlik, Box 44, Glenwillard, Pa., CA $1,046,680, 17,783 ft. c. conc. road, 24 ft. wide, 3 bridges, T.R. US 422, Plum Cree and Armstrong Twps., Shelocta Boro, Armstrong and Indiana Counties. Bids June 21, CD 6/25.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg, Bids opened 7/12,

Pa.—James D. Morrissey, Inc., 9119 Frankford Ave., Phila., 14, Pa., LB $421,831 (11 bidders) 14.215 ft.



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crushed aggreg. base with bit. surf. one I-beam bridge, L.R. 152 (9), Bristol Boro, Bristol Twp., Bucks Co.;

PA.—**Robert A. Callenberger,** McEwensville, Pa., LB **$123,193** (3 bidders) surf. 51.717 ft. existing road with bit. surf. T.R. 249 (5); 254, Greenwood, Fishing Creek and Benton Twps., Columbia Co.;

Pa.—**Sweeney Bros. Inc.,** 40 Poplar St., Scranton, Pa., LB **$102,043** (3 bidders) surf. 7,913 ft. existing road with bit. L.R. 35072 (2) Scranton, Lackawanna Co.;

Pa.—**Ezra Stipp Constr. Co.,** Love Rd., Scranton, Pa., LB **$83,499** (2 bidders) overlaying, wid'n. 6,074 ft. hy. with crushed aggreg. base, and bit. surf. L.R. 35075 (1) Archbald Boro, Lackawanna Co.;

Pa.—**Worthington Constr. Co.,** Box 95, Line Lexington, Pa., LB **$606,270** (6 bidders) 19,219 ft. crushed aggreg. base with bit. surf. two I-beam bridges L.R. 39025 (3), Lower Macungie Twp., Lehigh Co.;

Pa.—**Stabler Constr. Co.,** 635 Lucknow Lane, Harrisburg, Pa., LB **$167,154** (3 bidders) surf. existing hy. 36,916 ft. with bit. surf. T.R. 14-45-242-122, W. Chillisquaque, U. Augusta, Rockefeller, Mt. Carmel Twps., Milton, Mt. Carmel Boros, and City of Sunbury, Northumberland Co.;

Pa.—**Broman Constr. Co., Inc.,** Box 168, Clarion, Pa., LB **$137,202** (3 bidders) wid'n. and overlaying 12,094 ft. existing hy. with crushed aggreg. base and bit. surf. Bear Lake Boro, Freehold Twp., Warren Co. CD 6/19.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg.

E. D. Plummer & Sons, Chambersburg, Pa. CA **$519,772,** 15,973 ft. crushed aggreg. base with bit. surf., 1 rein.-con. bridge; T. R. 16, Antrim Twp., Franklin Co. Bids June 21, awarded July 10. CD 6/25, under LB.

▲ **Union Switch & Signal Co.,** Swissvale, Pa. LB **$2,017,625,** Bid 4448, Broad St., subway, high speed line, signal and inter locking system, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Howard S. Hipwell, Chief City Transit Sys. Engr. CD 5/23.

Atkins Brothers, Millsboro, Del. LB **$65,000.** imprv. Assawoman Canal, Sussex Co., Contr. 1624, DELAWARE, State Hy. Dpt., Hy. Admin. Bldg., Dover, Del. Bids July 10. CD 7/1.

BUILDINGS—LB & CA

Westwood Manor Homes, c/o Nassau Suffolk Realty, 105 Grand Ave., Massepequa Park, N. Y., Owner Builds. **$360,000.** 30 HOUSES, Brentwood Rd., BRENTWOOD, N. Y.

Nadal-Baxendale, Inc., 654 Madison Ave., New York 21, N. Y., CA **$350,000.** St. Francis de Chantal SCHOOL addn., NEW YORK, N. Y. Archdiocesan Bldg. Comm., 451 Madison Ave., New York 22, N. Y. Bids June 5. CD 5/29.

▲ **Alex D. Doig & Sons,** 58 Lake Dr. W., Packanack Lake, N. J. Own Forces. **$1,750,000,** 55 HOUSES, Packanack and Alps Rd., PACKANACK LAKE, N. Y., V. J. Kordys, 116 Passaic St., Passaic, N. J., archt.

Thomas J. Hughes Constr. Co., Grand Central Terminal Bldg., New York 17, N. Y., CA **$650,000,** priests and brothers RESIDENCE for St. Paul's Church and School, ST. GEORGE, N. Y. Archdiocesan Bldg. Comm., 451 Madison Ave., New York 22, N. Y. Bids June 18. CD 5/29.

▲ **Amy Builders,** Stankse St., West Orange, N. J., Own Forces, **$2,000,000,** 60 HOUSES, Meadowbrook Dr., NORTH PLAINFIELD, N. J. W. A. Paleczny, 742 S. 20 St., Newark, N. J., archt.

▲ **Mahony-Troast Constr. Co.,** 130 N. Broadway, Camden, N. J., CA **$1,500,000.** 1 and 2 story, masonry, structural steel PLANT addn. and OFFICE BLDG. EVANSBURG, PA. Superior Rubber Co., Evansburg, Pa.

Daniel B. VanCampen Corp., 1420 Walnut St., Phila. Pa., LB **$421,111** (11 bidders) general construction, VOCATIONAL SCHOOL to serve 5 school districts in Lower Bucks County, Levittown, FALLSINGTON, PA. Bucks County Technical School Auth., Fallsington, Pa. Pennell & Wiltberger, 1201 Chestnut St., Phila., Pa., engrs. CD 7/28/55.

▲ **Rust Eng. Co.,** 930 Fort Duquesne Blvd., Pittsburgh, Pa. CA Est. **$6,500,000,** ATOMIC REACTOR CENTER, steel, and concrete, 3 elevations, lab bldg., processing bldg. and office bldg., Westmoreland Co., near IRWIN, PA. Westinghouse Electric Corp., 3 Gateway Center, Pittsburgh, Pa. CD 9/26/56.

Dill Constr. Co., Latrobe, Pa., CA Est. **$500,000.** 2 story, 37x135 ft., 24x52 ft. and 90x98 ft. brick, block SERVICE CENTER, LATROBE, PA. West Penn Power Co., Greensburg, Pa. Hoffman & Crumpton, Century Bldg., Pittsburgh, archts.

Farraro Constr. Co., 523 N. Homewood St., Pittsburgh, Pa., LB **$705,000.** 5 story, 119x306 ft. rein.-con., steel PARKING GARAGE, Lysle Blvd. and Locust St., MCKEESPORT, PA. McKeesport Parking Auth., 508 Locust St., McKeesport, Pa. CD 7/23/56.

Rea Constr. Co., 27 Woodlawn Ave., Crafton, Pittsburgh, Pa., LB **$959,400,** 1 and 3 story, 40x350 ft., brick, block JUNIOR HIGH SCHOOL, NEW BRIGHTON, PA. New Brighton Joint Area School Dist., New Brighton, Pa. A. L. Martsolf, 512 3 Ave., New Brighton, Pa., archt. CD 3/11.

▲ **Philip Seltzer Co.,** Western Savings Fund Bldg., Phila., Pa., Separate Contracts. **$1,500,000.** RESIDENTIAL DEVELOPMENT, Winchester St., etc., PHILA., PA. Henry S. Berg, 1411 Walnut St., Phila., archt.

Poling & Bacon, Box 267, Poland, O. CA Est. **$605,000.** 2 story, bsmnt., 112x300 ft., brick, block parochial HIGH SCHOOL, McKnight Rd., McCandless Twp., PITTSBURGH, PA. Vincentian Sisters of Charity, 8200 McKnight Rd., Pittsburgh, Pa. Smith Friedman & Smith, 125 W. Commerce St., Youngstown, O., archts.

Graziano Constr. Co., 7321 Franktown Ave., Pittsburgh, Pa., CA Est. **$962,680.** 4 story, 44x93 ft., steel brick, block HOSPITAL addn., alterations, TARENTUM, PA. Allegheny Valley Hospital, Tarentum, Pa. CD 4/13/55.

▲ **Wark & Co.,** 1920 Sansom St., Phila., Pa. CA **$2,050,000,** general contract HIGH SCHOOL, WILLOW GROVE, PA. Upper Moreland Twp. School Dist., Willow Grove, Pa. CD 6/12, under LB.

▲ **Charles R. Scrivener Co., Inc.,** 240 S. Hilton St., Baltimore 29, Md. CA **$2,500,000,** masonry, concrete steel block SHOPPING CENTER, Baltimore National Pike and Ingleside Ave., west of BALTIMORE, MD. Westview Shopping Center, Inc., 10 E. Fayette St., Baltimore 2, Md.

▲ **Victor R. Beauchamp,** 431 Cedar St. N.W., Wash., D. C., LB **$1,728,000** (9 bidders) HOSPITAL, CHEVERLY, MD. Prince George's Co., Hospital, Cheverly, Md. Bids July 12. CD 6/19.

▲ **Rupert Constr. Co.,** 3400 Lancaster Ave., Wilmington, Del. CA **$2,282,300.** Brandywine HIGH SCHOOL, WILMINGTON, DEL. Alfred I. DuPont School Dist., 3606 Concord Pike, Wilmington, Del. Bids June 18. CD 6/24, under LB.

F & J Tigani, 13 and Union Sts., Wilmington, Del., Separate Contracts, **$350,000.** RESIDENTIAL DEVELOPMENT, Bestfield Manor, WILMINGTON, DEL.

SOUTH

HEAVY CONSTRUCTION—BA

† **Fla., Cocoa**—HOUSING—BA 7/31—Contg. Officer, Air Force Missile Test Center, 999 units armed service housing, Patrick Air Force Base, ENG-08-606-58-1. Norman M. Giller & Assocs., 975 Arthur Godfrey Rd., Miami Beach, archts. CD 6/24.

† **Mississippi**—BA 8/1—U. S. Eng., P. O. Box 60, Vicksburg, Miss., 505,000 cu. yd. earthwork, on east bank of Pompey Ditch, in Quitman Co.

† **Florida**—BA 8/9—U. S. Eng., Box 4970, Jacksonville. Levees 23 and 24, Miami Canal, Central & Southern Florida Flood Proj. CIVENG-08-123-58-2. CD 2/8, under LB.

† **MISSISSIPPI** — BA 8/13 — Bureau Pub. Rds., Dpt. Commerce, First National Bank Bldg., Florence, Ala.,

Webster Co.—3 rein.-con. bridges over Line Creek Canal and two County Rds., and other work, 0.147 mi. Natchez Trace Parkway, Proj. 3G5, 14.17; adv. ENR 7/25.

BUILDINGS—BA

S. C., Clemson—SCIENCE BLDG—BA 7/31—Clemson Agricultural College, Clemson, structural science bldg. Plans deposit $100. Lockwood, Greene Engineers, Inc., 1020 Montgomery Bldg., Spartanburg, engr.

Fla., Delray Beach—HOSPITAL—BA 8/1—Bd. Comrs. Southern Palm Beach Co. Dist., 1 story, bsmnt., 250x350 ft. air-conditioned hospital. CB-S. S.W. 26th St. and Seacrest Blvd. Plans deposit $50 Associated Architects, 1200 E. Atlantic Ave., archts.

BUILDINGS—SLC

Ky., Lexington—DORMITORY, etc.—Transylvania College, 200 W. 3rd St., soon lets contract 4 and 2 story brick on concrete block dormitory and dining hall, 7,500 sq. ft. $800,000. John Gilliz, 180 Walnut St., Lexington, Ky., archt.-engr. Bids 6/19 rejected. CD 6/28, under LB.

HEAVY CONSTRUCTION—LB & CA

WEST VIRGINIA—State Rd. Comm., Charleston, Zone 5, **Anderson's, Inc., Nichols & Ronk, Inc., & Huntington Asphalt Corp.,** 1500 Penna. Ave., Charleston and Huntington, W. Va., LB **$74,211,** 11.16 mi. Pt. Pleasant-Huntington Rd. for b. conc. surf. let with Proj. 2033, Cabell Co. and 2176 (pt) Wayne Co. Bids July 9.

† **King-Hunter, Inc.,** 1421 Westover Terrace, Greensboro, N. C. CA **$127,715,** power bldg. at U. S. Air Force Facility, ENG-31-075-57-43, vicinity of WINSTON SALEM, N. C. Bids June 6. CD 5/22, under LB.

Franklin Contr. Co., Inc., 751 E. 9th St., Hialeah, Fla. LB **$266,945,** Sidewalk Program 2-A; 2-B; 2-C; 2-D, HIALEAH, FLA. City, City Hall, Hialeah, Fla. Bids June 25.

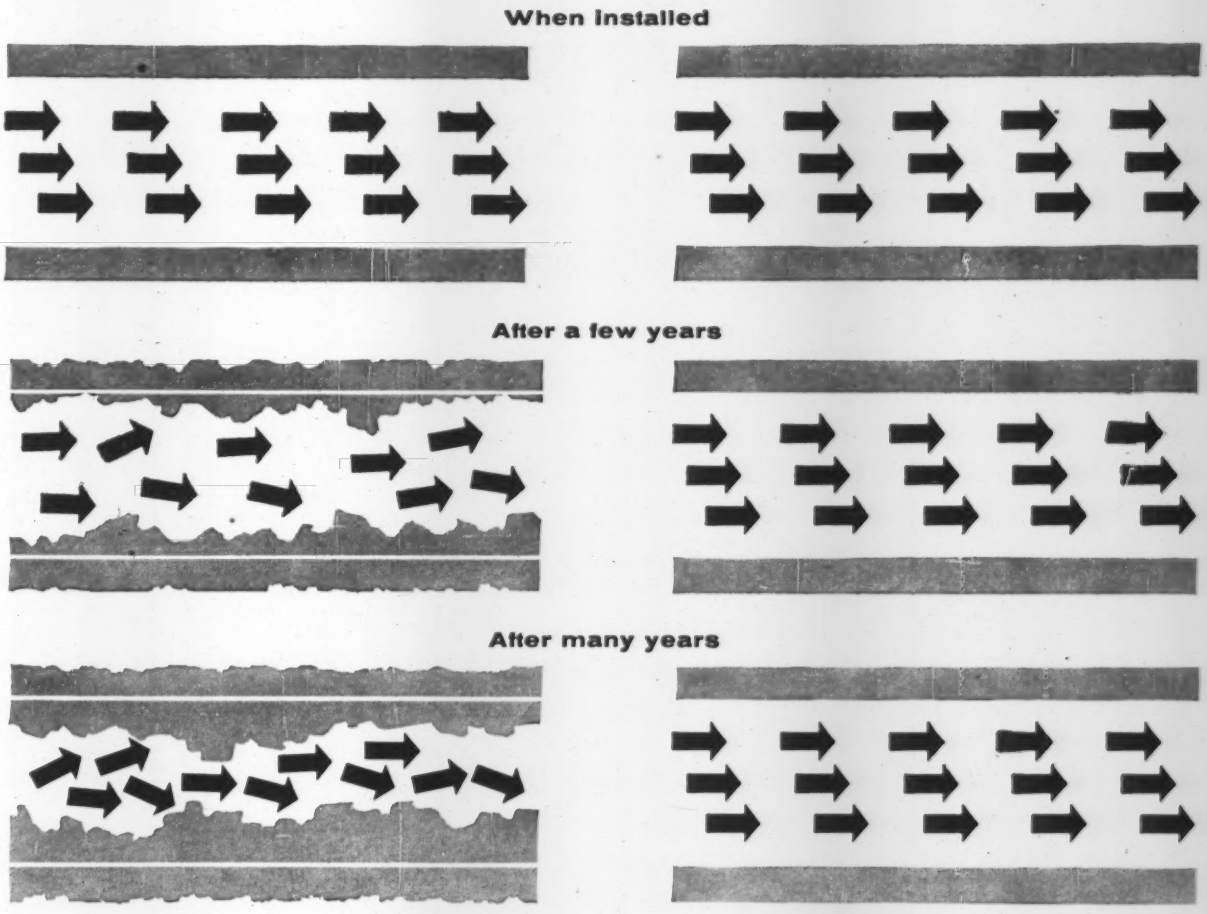
Pecon Corp., 167 Almeria Ave., Coral Gables, Fla.; LB **$99,371,** sanitary sewer imprvs., Brentwood Sanitary Sewer Dist., vicinity of N. E. 2 Ave. and N. E. 46 St., SR-3396 and 3390, MIAMI, FLA. City Comm., City Hall, 3352 Pan American Dr., Miami, Fla. City Eng. Dpt., A. E. Darlow, dir., City Hall, Pan American Dr., Miami, Fla., engrs. Bids July 3. CD 6/21.

† **Tampa Fabricators Inc.,** foot of Grant St., Tampa, Fla., LB **$95,500.** maintenance and security U. S. Naval Industrial Reserve Shipyard, NBy 13894, Spec. 13894/57. TAMPA, FLA. Dist. P. Wks. Office, Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C. Bids June 26. CD 6/6.

Marine Gathering Co., c/o Texas National Bank Bldg., Houston, Tex. CA **$385,000,** laying 30 mi. pipe line, oil in Gulf of Mexico, off Grand Isle, Plaquemines Parish, LOUISIANA. Marine Gathering Co. (a Div. of

(Continued on page 108)

OLD-FASHIONED PIPE K&M ASBESTOS PIPE



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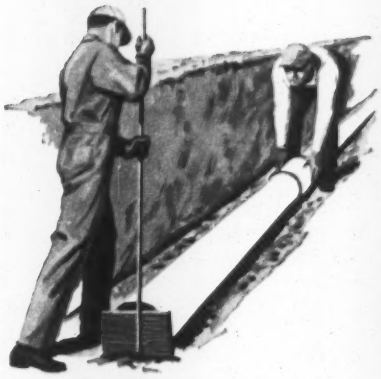

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(Continued from page 106)

Commonwealth Oil Co. of Texas), c/o Texas National Bank Bldg., Houston, Tex;
Collins Constr. Co., Port Lavaca, Tex. CA **$75,000**, submarine pipe line trenching, 30 mi. off Grand Isle, Plaquemines Parish (Louisiana).

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort, Bids opened 7/3,

Ky.—**W. C. Snider**, Danville, Ky., and **W. M. Hooper**, Caneyville, Ky., LB **$378,007** (3 bidders) b. conc. surf. Class 1, using dense graded aggregate base, 3.692 mi. F 205 (3) SP 90-265, the Bardstown, New Haven R., (U. S. 31-E), Nelson Co.;

Ky.—**R. B. Tyler Co.**, 1446 Levering, Louisville, Ky., LB **$181,148**, b. conc. surf. Class 1, river gravel aggregate 15.702 mi. Hiskmann-Fulton Rd., Fulton Co. CD 6/17.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort, **R. E. Gaddie, Inc.**, Bowling Green, Ky., CA **$97,359**, b. conc. surf. (Class 1), 3.073 mi. The US-Oakland 31-W Road SP-114-108, Warren Co. Bids June 14.

BUILDINGS—LB & CA

▲ **Watson & Yeargan Co.**, Box 117, Jesup, Ga., CA **$1,398,800**. 15 SCHOOL projects, CARROLLTON, GA. State School Bldg. Auth., 244 Washington St. S.W., Atlanta, Ga. Bids June 18, awarded July 1. CD 6/27, under LB.

Lindsey-Mundy Constr. Co., 3541 S. W. 48 Ave., Hollywood, Fla., Owner Builds. **$376,000**, 64 RESIDENCES, Lake Forest Section, Broward Co., HOLLYWOOD, FLA.

▲ **Taylor Constr. Co.**, 2875 N. LeJeune Rd., Miami, Fla. CA **$5,695,000**, HOSPITAL, 4300 Alton Rd., MIAMI BEACH, FLA. Mount Sinai Hospital of Greater Miami, 300 Alton Rd., Miami Beach, Fla. Bids June 21, awarded July 5. CD 6/27, under LB.

Albert Thompson Constr. Co., 901 N. Fremont St., Tampa, Fla., LB **$363,500**, PLANT, ORLANDO, FLA. Borden's Dairy, 148 W. South St., Orlando, Fla., Pullard, Bowen & Watson, 2910 Grand Central St., Tampa, Fla., archts.

Liles, McElvey & Rutland, 2828 W. Edgemont Ave., Montgomery, Ala. CA **$520,192**, LOW RENT HOUSING, Proj. Ala 112-1 and 112-2, OPP, ALA. Opp Housing Authority, Opp, Ala. Bids June 4, awarded July 2. CD 6/12, under LB.

† **U. S. Eng.**, P. O. Box 59, Louisville 1, Ky., cancelled bids to have been opened July 9, 1 story ARMORY, U. S. Army Reserve Training Center, ENG-15-029-57-61, OWENSBORO KY. **$150,000**. CD 6/13.

O. B. Davis Constr. Co., 641 N. Market St., Chattanooga, Tenn., CA **$585,660**. constr. EAST RIDGE HIGH SCHOOL, CHATTANOOGA, TENN. Hamilton Co. Bd. Educ., Chattanooga, Tenn. Bids June 25, awarded July 2. CD 7/8, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ill., Chicago**—BA 8/1—City, City Hall, Northwest Expressway from Van Buren to Madison. $2,000,000. CD 2/13/45.

BUILDINGS—BA

▲ **Ill., Highland Park** — SCHOOL — BA 8/4 — School Dist. 108, 711 Lincoln Ave., intermediate school. $1,500,000. Childs & Smith, 20. N. Wacker Dr., Chicago, Zone 6, archts.

▲ **Mich., Chelsea**—SCHOOLS—BA 8/6—Bd. Educ., Chelsea School Dist., Howard Flintoft, secy., high school Washington St. and elementary school McKinley St. $2,200,000. Plans deposit $25. Yamasaki Leinweber & Assoc., 103 W. 5th St., Royal Oak, archts. CD 6/14, under LB.

Wis., Oshkosh—WAREHOUSE—Bids Asked—Oshkosh Storage Co., 701 S. Main St., 2 story, 82x182 ft. concrete steel warehouse, $250,000. Auler, Dreger, Wiley & Weitsch, Inc., 46 Washington Blvd., engr.-archt.

BUILDINGS—SLC

Ill., Chicago—FACTORY—Samuel Liff Corp., 633 S. Plymouth St., soon lets contract, factory, Jefferson and Taylor Sts. $300,000. E. P. Steinberg, 180 W. Washington St., Zone 2, archt.

Ill., Chicago—PLANT—Sunbeam Corp., 5408 W. Roosevelt Rd., soon lets contract die casting plant on premises, $450,000. Olsen, Urbain & Sandstrom, 5 S. Wabash St., archts. CD 6/18.

HEAVY CONSTRUCTION—LB & CA

Shullo Constr. Co., 1200 Home Ave., Akron, O., CA **$96,290**, 1½ mi. 16" in. water line to General Motors Corp. plant at Hudson, AKRON, O.. City Bd. Control, City Hall, Akron, O. CD 6/4.

H. L. Vokes Constr. Co., 1000 Wayside Rd., Cleveland 10, O., CA Est. **$102,000**. 52x317 ft. airplane hangar, 5300 Riverside Rd., Cleveland, Hopkins Airport, CLEVELAND, O. Executive Hangars, Inc., c/o H. L. Vokes Co., 100 Wayside Rd., Cleveland 10, O.

Federal Pacific Electric Co., 4145 E. 79 St., Cleveland 5, O., LB **$106,100** (5 bidders) 1 sub-station switchgear complete, CLEVELAND, O.. City Dpt. P. Utilities, Emil J. Crown, dir., City Hall, Cleveland 14, O. Vincent De Mello, c/o owner, engr. CD 7/13/49, under Public Buildings.

Gast Constr. Co., New Bremen, O., CA **$75,494**, resurf. local streets, WAPAKONETA, O. City, City Hall, Wapakoneta, O.

Roy C. Clark, 804 E. Chicago St., East Chicago, Ind., LB **$130,850**, park, sewers, water, bathhouse and boathouse, EAST CHICAGO, IND. East Chicago Park Dist., 1709 E. 142 St., East Chicago, Ind. McFadzein, Everly, 874 Green Bay Ave., Winnetka, Ill., engrs.

† **Nally & Gibson**, Springfield, Ky., CA **$74,976**, loading dock, Jefferson Proving Grounds, ENG-15-029-57-79, JEFFERSONVILLE, IND. U. S. Eng., Louisville Dist., P.O. Box 59, Louisville 1, Ky. Bids June 26, awarded June 29. CD 5/28.

† **Evans Constr. Co.**, 1900 E. Washington St., Springfield, Ill., CA **$119,810**, 1 story, 3,200 sq. ft., rein.-con. ROCKET STORAGE BLDG. with 1,450 sq. ft. loading platforms, 2,100 sq. ft. b. conc. access roads, storm drain connections, utilities, Capital Airport, ENG-11-032-57-91, ILLINOIS. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. Bids June 21. CD 6/10.

† **Ed. Geiger Co.**, 416 S. High St., Belleville, Ill., CA **$171,000**, replacing condensate lines, chapel redecorating and commissary modification, SCOTT AIR BASE, ILL. Purch. & Contg. Office, Scott Air Force Base, Ill.

Monona Rd. Constr. Co., Madison, Wis. CA **$183,279**. paving 6 streets, MADISON, WIS., City, City Hall, Madison, Wis. Bids June 11.

White Constr. Co., 828 N. Broadway, Milwaukee 2, Wis. LB **$105,299**. paving Proj. No. 1, MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids June 7. CD 10/23;
R. E. Beaudoin & Son Co., 7227 Maple Terrace, Wauwatosa 13, Wis. LB **$298,716**. Proj. No. 2 (Milwaukee, Wis.).
Milwaukee General Constr. Co., 4580 South 13th St., Milwaukee 15, Wis. LB **$79,610**. Proj. No. 3 (Milwaukee, Wis.).

City Parks & Recreation Comn. Vaughan Reid, pres., Detroit, Mich., rejected bids June 4, four wood piling anchorages, incl. driving 84 pile with timber ties and structural steel anchorage pile pieces, DETROIT, MICH. LB **$28,000**. New bids July 16. CD 5/24.

BUILDINGS—LB & CA

▲ **Burger Iron Co.**, 1324 Firestone St., Akron, O. CA Est. **$1,000,000**. first units of 11 one story, 210x260 ft. and 210x210 ft. brick, glass WAREHOUSES, east of city limits, AKRON, O. Gilchrist Industrial Dist., Paul Tell, pres., 131 N. Summit St., Akron, O.

▲ **Millers Contractors & Builders, Inc.**, 211 E. 4 St., Cincinnati, O.. Own Forces. **$3,500,000**. 125 brick HOMES, off Fleetwood Ave., CINCINNATI, O. Jos. Allen, 5555 Glenway Ave., Cincinnati, O., engr.

de Hamel Constr. Co., Citizens Bldg., Cleveland 14, O., LB Est. **$129,000**, design and construct 12,000 sq. ft. bulk STORAGE BLDG., Cleveland Works, 1000 Harvard Ave., CLEVELAND, O. Harshaw Chemical Co., 1945 E. 97 St., Cleveland 6, O.

Land & Development Co., 2953 "G" St., Lorain, O., Owner Builds. **$565,000**. 36 HOMES, Nebraska Ave., McKinley and "G" Sts., LORAIN, O.

▲ **H. C. Huber Constr. Co.**, 631 E. Stroop St., Dayton, O. Owner Builds. **$15,000,000**. 1,000 single family DWELLINGS, 275 acres, REYNOLDSBURG, O.

Clifford C. Loss, Inc., 5824 Buchanan Dr., Toledo, O., Owner Builds. **$500,000**. 38 HOMES, Acoma Dr., Rambo Lane, Brock Dr. and Buchanan Dr., TOLEDO, O.

Northern Builders, 4008 Addison St., Chicago, Ill., CA **$600,000**, FACTORY, CHICAGO, ILL. Central Can Co., 2417 W. 19 St., Chicago, Ill. N. Ronneberg, 3906 Harlem St., Chicago, Ill., archt. Awarded July 8.

John C. Long, 600 W. Jackson, Chicago 6, Ill., LB **$760,000**, Roswell B. Mason SCHOOL, CHICAGO, ILL. Bd. Educ., 228 N. La Salle St., Chicago 1, Ill. Fox & Fox, 20 N. La Salle St., Chicago 2, Ill., archts. CD 6/25.

Pepper Constr. Co., 300 W. Washington St., Chicago 6, Ill., CA **$375,000**, CHURCH, OAK PARK, ILL. First Presbyterian Church, 931 Lake St., Oak Park, Ill. CD 6/12.

Jos. P. Jensen Co., 5376 N. Teutonia Ave., Milwaukee, Wis., LB **$543,890** (9 bidders) general contract HIGH SCHOOL, GRAFTON, WIS. Jefferson Jt. School Dist. No. 1, Grafton, Wis. Bids July 2. CD 6/4.

▲ **Granger Bros., Inc.**, 27-2 South Cedar St., Lansing, Mich. CA **$1,844,000**. general contract, MEN'S INTRAMURAL BLDGS., Michigan State University, EAST LANSING, MICH., State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Grand total **$2,707,000**. Lewis J. Sarvis, 248 Champion St., Battle Creek, Mich., archt. Bids May 21. CD 7/20/56;
C. L. Mahoney Co., Kalamazoo, Mich. CA **$492,000**. mechanical contract, men's intramural bldgs., (East Lansing, Mich.);
Hatzel & Buehler, Inc., 3215 W. St. Joseph St., Lansing, Mich. CA **$371,000**. electrical contract, men's intramural bldg., (East Lansing, Mich.)

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Missouri**—BA 8/13—U. S. Eng. P. O. Box 867, Little Rock, Ark., relocate Approx. 1.4 mi. Hy. 148 and 618 ft. structural steel bridge over James River with all drainage structures, Table Rock Reservoir Proj., White River Watershed, White River Barry Co., GIVENG-03-050-58-3, $500,000-$1,000,000. CD 8/4.

† **Missouri**—BA 8/15—U. S. Eng., P. O. Box 867, Little Rock, Ark., relocation 1.35 mi. hy. P. 772 ft. steel bridge, abutments and 5 piers across White

River in Table Rock Dam Watershed, near Branson, Taney Co., $500,000-$1,000,000. CD 8/4.

† **Nebraska**—BA 8/20—Bureau Reclamation, Dpt. Interior, McCook, earthwork and structures for Driftwood West Canal, Laterals, Wasteways and Drains and Driftwood Laterals 23.5-28.5 inclusive, Frenchman-Cambridge Div., Missouri River Basin Proj., near McCook, Spec. No. DC 4941; adv. ENR 7/25. CD 9/10.

BUILDINGS—BA

Mo., Fulton—DORMITORY—BA 7/30—William Woods College, J. H. Atkinson, pres. Bd. Directors, Fulton, 3 story, bsmnt., L-shaped, rein.-con. masonry, dormitory bldg. $500,000. Plans deposit $50. Sverdrup & Parcel, Inc., 915 Olive St., St. Louis, Zone 1, archt. CD 11/20.

Neb., Omaha—POWER TRANSFORMER, etc.—BA 7/30—Omaha Public Power Dist., 17 and Harney Sts., Omaha, Contr. 387, power transformer and phase bus; Contr. 391, outdoor switchgear. A. G. Johnson, c/o owner, ch. engr. CD 2/6/56.

▲ **Okla., Muskogee**—HOSPITAL—BA 7/31—City, City Hall, municipal hospital. $1,665,000. Horstman & Matt, Manhattan Bldg., archts. CD 12/21/55.

▲ **Mo., Jefferson City**—HOSPITAL—BA 8/1—Memorial Hospital Bldg. Com., 2 and 4 story hospital bldg. addn. and 160 car parking lot. $1,000,000. Plans deposit $50. Hewitt & Roger, 607 Westport Rd., Kansas City, Mo., archts. and engrs. CD 6/19.

▲ **Iowa, Eldridge**—SCHOOL—BA 8/2—No. Scott County Community School Dist., constr. Junior-Senior High School. $1,100,000. Raymond Orput, Rockford, Ill., archt. CD 2/13.

Tex., Houston—SCHOOL—BA 8/6—Houston Independent School Dist., 1300 Capitol St., elementary school, S. Rice and Jason Sts., in Meyerland. $665,000. CD 6/8/56.

▲ **Tex., Houston**—PARKING GARAGE—BA 8/14—Hermann Estate, 6410 Fannin Bldg., Houston, Tex., or c/o Hedrick, Stanley & Lightfoot, archts., 5201 Fannin Bldg., 370,000 sq. ft., self parking garage. $1,500,000. CD 3/7.

▲ **Wyo., Cheyenne**—OFFICE, etc.—BA 8/22—State Hy. Dpt., State Office Bldg., office and shop, $2,000,000. CD 9/11.

▲ **Tex., El Paso** — FACTORY — Bids Asked — Tempron Corp. of Texas, c/o C. C. Cragin, trustee, c/o El Paso National Gas Bldg., hardboard mfg. factory. $3,500,000. CD 11/15.

▲ **Tex., Texas City**—PLANT—Bids Asked—Monsanto Chemical Co., Texas City and Springfield, Mass., expansion styrene Monomer Production Plant, $6,000,000; acetylene plant expansion, $3,000,000. CD 7/11.

BUILDINGS—SLC

Mo., Shrewsbury (St. Louis 17, P.O.)—SWIMMING POOL—Archdiocesan Bldg. Comn., Rev. James R. Hartnett, secy., 3810 Lindell Blvd., St. Louis, Zone 8, soon lets contract 75x40 ft. rein.-con. swimming pool at St. Louis Preparatory Seminary, 5200 Glennon Ave. Henry P. Hess, 4005 West Florissant Ave., St. Louis, Zone 15, archt.

N. D., Kenmare—HOSPITAL—Kenmare Deaconess Hospital Assn., Kenmare, soon lets contract, hospital. $400,000. Ritterbush Bros., 209 N. Seventh St., Bismarck, archts. CD 4/10.

Tex., Houston—TELEPHONE EXCHANGE—Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, soon lets contract. 2 telephone exchange bldgs. $550,000.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul.

Woodrich Constr. Co., Hopkins, Minn., CA **$1,466,987,** grading, paving, shouldering 8 mi. between north junction with TH 14 at Owatonna and 1 mi. north of South Line of Rice Co., Rice and Steele Counties. Bids June 29. CD 7/9, under LB.

James H. Merryman, Algona, Iowa, CA **$138,171,** bridge, ALGONA, IOWA: Kossuth Co., Algona, Iowa. Bids June 18;
Everds Bros. & Elmer Dole, Algona, Iowa, CA **$82,998,** surf. (Algona, Iowa).

Fort Dodge Limestone Co., 522 S. 22 St., Fort Dodge, Iowa, CA **$86,021** (3 bidders), surf., HAMPTON, IOWA. Franklin Co., Hampton, Iowa.

E. M. Dusenberg, Mason City, Iowa, CA **$185,000,** paving farm to market road, IDA GROVE, IOWA. Ida Co., Ida Grove, Iowa.

Sundberg Well Co., Audubon, Iowa, CA **$71,399,** Part I Sect. II WW imprvs., involving 11,300 lin. ft. 8 in. c.i. pipe, 448 ft. river crossing, 2,750 lin. ft. 8 in. c.i. pipe in city, etc., MADRID, IOWA. City, Ortha H. Darby, city clk., City Hall, Madrid, Iowa. Bids July 2. CD 6/24;
Lippert Bros., Inc., 827 Monona St., Boone, Iowa, CA **$49,908,** Part II, Sect. II WW imprvs. involving rein.-con. surface reservoir, frame bldg., high service pumps, controls and accessories, (Madrid, Iowa).

▲ **MISSOURI**—State Hy. Dpt., Jefferson City, Bids opened 6/27,

Mo.—**James Gould,** 71 North Valley St., Kansas City, Mo. LB **$96,199,** (5 bidders), grav. surf. 6.329 mi. Calloway Co.;

Mo.—**Clark & Farmer Constr. Co.,** Camdenton, Mo. LB **$107,029** (4 bidders), grav. or crushed stone surf., Carroll Co.;

Mo.—**M. E. Gillioz,** Mornett, Mo. LB **$2,566,439,** (5 bidders), 24 ft. c. conc. 9.382 mi. Greene Co.;

Mo.—**Krekbiel Constr. Co.,** Columbia, Mo. LB **$92,592** (4 bidders) granular surf. 9.418 mi. Johnson Co.;

Mo.—**Lee Hardy & Son,** Shebyville, Mo. LB **$113,225,** (3 bidders), grav. or crushed stone surf. 13.845 mi. Lewis Co. CD 6/12.

ARKANSAS—State Hy. Dpt., State Capitol, Little Rock, Bids opened 7/10,

Forsgren Brothers, Fort Smith, Ark., LB **$508,613,** 6 rein.-con. bridges, totaling 2,109 ft. on new State Hy. 88 near Hot Springs, Garland Co. CD 7/3.

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,

Fairchild Constr. Co., Warren, Ark., CA **$1,253,800,** 2 overpass bridges, 2 relief bridges with concrete decking on new site US Hy. 67, near Benton, Saline Co. Bids July 10. CD 7/3.

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,

Ark.—**Ben M. Hogan & Co.,** 1100 Fairview, Little Rock, Ark., CA **$1,898,779,** c. conc. 12.28 mi. State Hy. 61 (interstate road); grading, surf.-asph. on frontage roads, also minor drainage structures, near Marion, Crittenden Co.;

Ark.—**Mississippi Valley Contg. Co.,** Paragould, Ark., CA **$133,671,** grav. base course double bit. surfacing 9.69 mi. Hillemann-Morton Rd., State Hy. 39, Sec. 7, Woodruff Co. Bids July 10, CD 7/3.

† **U. S. Eng.,** P. O. Box 867, Little Rock, Ark., cancelled bids to have opened July 24, operations bldg., Walnut Ridge Air Force Station, ENG-03-050-58-1, WALNUT RIDGE, ARK. Under **$100,000.** CD 7/3.

† **U. S. Eng.,** 1709 Jackson St., Omaha, Neb., cancelled bids to have been opened July 17, gas filler facilities, Inv. 25-066-57-120, near ASHLEY, N. D. CD 7/8.

Kovash, Inc., Dickinson, N. D., LB **$119,182,** vitr. clay piping; LB **$112,794,** Alternate No. 1, concrete piping for Lagoon sewage treatment system, DICKINSON, N. D. City, City Hall, Dickinson, N. D. Bids June 26. L. W. Veigel, Dickinson, N. D., engr.

† **C. F. Bower Co.,** Nebraska City, Neb. CA **$901,517,** repair dikes and revetment, Missouri River, Upper Dakota-Omadi Bends, near Dakota City, Inv. 25-066-57-122, NEBRASKA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 28. CD 7/11, under LB.

National Constre Co., 1335 S. 2nd St., Omaha, Neb., CA **$105,770.** street imprvs., LOUISVILLE, NEB. City, City Hall, Louisville, Neb. Bids July 2. CD 6/19.

Jullie & Cannon Constr. Co., Altamont, Kan., CA Est. **$101,000,** 94 mi. rural telephone lines in Baton, Ellis and Russell Counties, KANSAS. Gorham Telephone Co., George W. Murphy, pres. and mgr., Gorham, Kan.

† **Bachman & Keffer,** Pauls Valley, Okla. LB **$69,325,** est. $75,000, three flood water retard structures on Wewoka Creek, Wewoka and Seminole Counties, OKLAHOMA, Wewoka Creek Soil Dist. No. 2, Wewoka, Okla. CD 6/7.

† **W. D. Fulton Constr. Co.,** P. O. Box 7116, Oklahoma City 1, Okla. LB **$63,612,** est. $75,000 three flood water retard structures, Inv. SCS 49, Okla. 57, Roger Mills Co., OKLAHOMA. Soil Conservation Service, Agricultural Center Bldg., Stillwater, Okla.

† **Frank Newell & Son.,** P. O. Box 947, Muskogee, Okla. LB **$82,085,** est. $93,115, communications bldg. at Davis Field, ENG-34-066-57-58, Muskogee Co., OKLAHOMA, U. S. Eng., Box 61, Tulsa, Okla. CD 6/21.

† **Mantooth Constr. Co.,** Purcell, Okla. LB **$87,868,** est. $90,000, three flood water retards, near Duncan, Inv. SCS 48-Okla. 51, Stephens Co., OKLAHOMA. Soil Conservation Service, Agricultural Center Bldg., Stillwater, Okla.

† **Doerfler Constr. Co.,** 2514 S. Agnew St., Oklahoma City, Okla. CA **$775,037,** utilities, roads and streets for 640 acre development Tinker Air Force Base, ENG-34-066-57-61, OKLAHOMA CITY, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids June 26. CD 6/5.

† **Andrew Smith & Garwood Gerdes,** Dime Box and Deanville, Tex. LB **$87,497,** Base Bid, constr. flood-water retarding structures of earthfill embankments, etc., Sites I and 2 Cummings Creek, Lee Co., Inv. No. 3, TEXAS. Lee-Fayette Counties, Cummins Creek, W. C. & I. D. No. 1, Fred O. Placke, Box 53, Giddings, Tex. Bids June 28. CD 6/12.

† **Shamburger Constr. Co.,** Box 491, Abilene, Tex. LB **$102,702** Base Bid, est. $210,000; I. L. S. facilities Dyess Air Force Base, ENG-41-443-57-51, ABILENE, TEX. U. S. Eng., 100 West Vickery St., Fort Worth, Tex. Bids June 27. CD 6/12.

R. F. Jordan Constr. Co., c/o City Council, City Hall, Beaumont, Tex. LB **$169,023,** laying 11,454 ft. 18 in. rein.-con. water pressure pipe, BEAUMONT, TEX. City, City Hall, Beaumont, Tex. Geo. J. Schaumburg, 2678 Laurel St., Beaumont, Tex., engr. CD 7/12.

City, City Hall, Beaumont, Tex., Owner Builds. **$65,000.** water distr. exten. and sys. rehabilitation, BEAUMONT, TEX. City, City Hall, Beaumont, Tex. CD 7/12.

G. Sargl, Kyle Bldg., Beaumont, Tex., CA **$81,000,** street imprvs., paving, BEAUMONT, TEX. City, City Hall, Beaumont, Tex. CD 11/15/55.

City, City Hall, Beaumont, Tex. Owner Builds. **$90,000.** sanitary sewer collection lines extension and sys. imprvs., BEAUMONT, TEX. CD 7/8/55.

City, City Hall, Garland, Tex., Purchase and Hire. **$75,000,** sanitary sewerage sys. extension lines and rehabilitation, GARLAND, TEX.

City, City Hall, Garland, Tex., Purchase and Hire. **$100,000,** street imprvs., GARLAND, TEX.

Ayreshire Corp., c/o Arthur Coburn, 6825 Academy St., Houston, Tex., CA **$79,118,** hard paved streets, etc., HOUSTON, TEX. Embe Development Co., 1405 S. Post Oak Rd., Houston, Tex.

Ayreshire Corp., c/o Arthur Coburn, 6825 Academy St., Houston, Tex., CA **$47,000,** water lines, facilities,

(Continued on page 112)

WELDED or RIVETED

STEEL PLATE FABRICATION

- Boiler Casings
- Boiler Breechings
- Flues and Ducts
- Condenser Shells
- Condenser Piping
- Heavy Turbine Housings
- Fan and Blower Housings
- Dust Collector Housings
- Industrial Gas Mains
- Expansion Joints
- Hoppers and Bunkers
- Tanks and Vats
- Pressure Vessels
- Wind Tunnels
- Crane Bridge Girders
- Trolley Frames and Trucks
- Rigid Frames
- Roll-Over Fixtures
- Tank Turrets
- Gun Mounts
- Heavy Truck Bodies
- Engine Frames and Bases
- Crawler Frames
- Press Platens and Beds
- Press Columns
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- Roller Gates
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- Protection Angles

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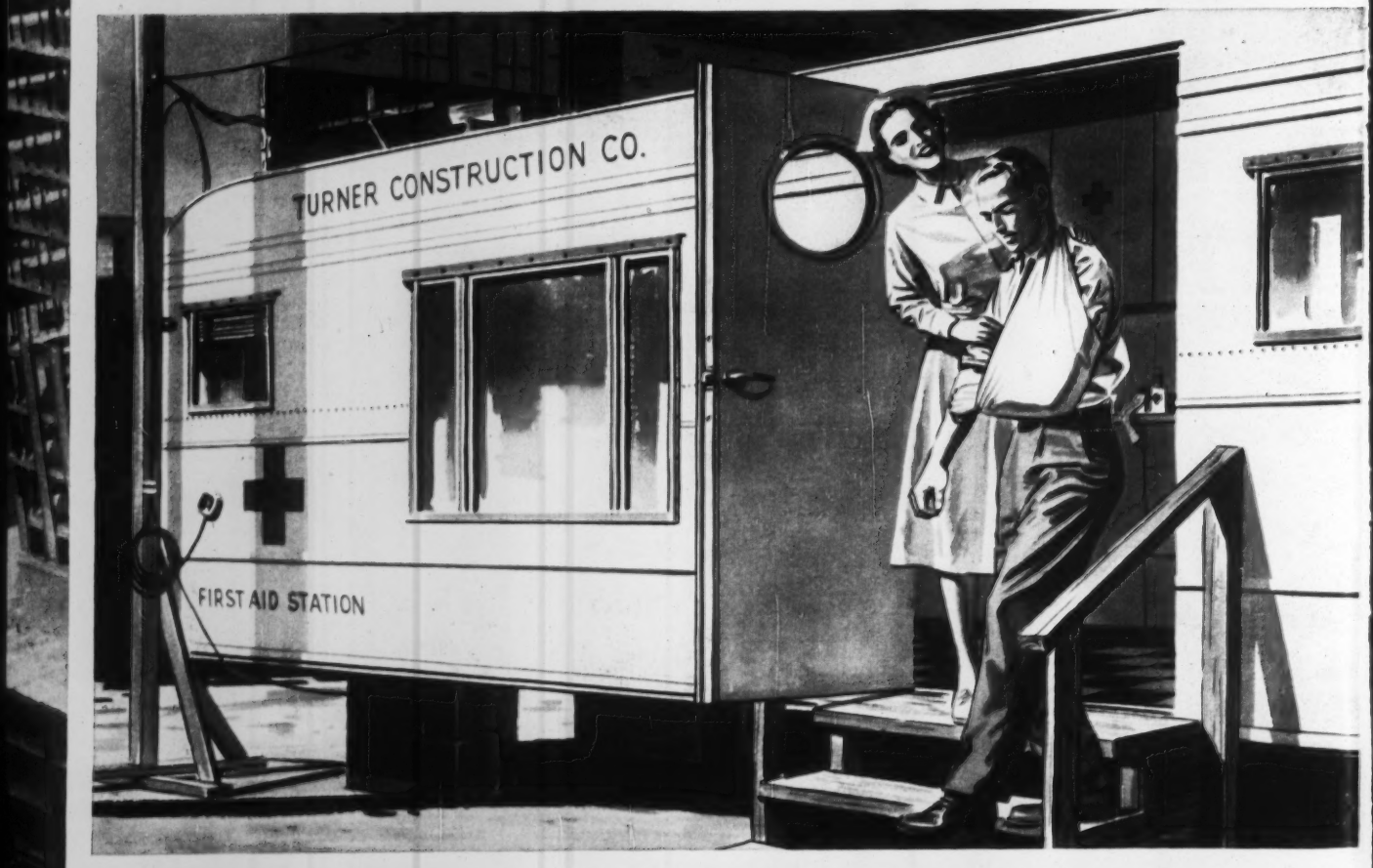
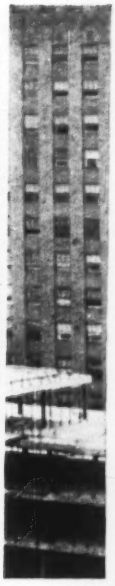
Insurance costs go down



as skyscraper goes up



The story of Liberty Mutual and the Socony-Mobil building

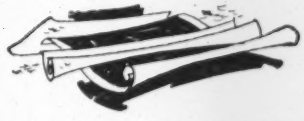
Building a 45-story skyscraper in Mid-Manhattan was a tough, dangerous assignment — yet the safety record on the Socony-Mobil Building was far better than all calculations. Here's why:

General Contractor Turner Construction Company and all sub-contractors were insured by one company — Liberty Mutual. This made it possible for Liberty and Turner to draw up an over-all safety plan — chart the hazards and devise ways to sidestep them — before the job began.

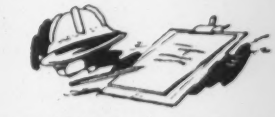
Liberty Mutual provided full-time, on-the-job claims and engineering supervision. Regular safety meetings were held. Every activity was checked. All injuries received immediate attention. Structural surveys and pre-blasting checks were provided by Liberty Engineers. Wherever a man turned, there was a common-sense slogan reminding him to work safely.

Thanks to complete cooperation from management and workers — Liberty's integrated safety program paid off in a noteworthy loss record — insurance savings all along the line.

10 WAYS LIBERTY MUTUAL CUTS INSURANCE COSTS ON CONSTRUCTION JOBS



1. ADVANCE ANALYSIS, by Liberty engineers, spots and controls potential hazards before each of your projects begins.



2. ENGINEERS ON THE JOB who keep your men safe, control damages due to blasting, unsafe operating methods, etc.

3. RESEARCH by specialists in Liberty's own laboratory helps solve your difficult problems.

4. AROUND-THE-CLOCK CLAIMS SERVICE — full-time claimsmen on the bigger jobs — assures fast, fair claims handling.

5. ABILITY TO FOLLOW YOUR OPERATIONS — Liberty has branch offices in 146 cities — at your service.

6. SERVICE PERSONNEL live on large projects both here and abroad, plan and guide safety operation.

7. LARGE MEDICAL STAFF, plus three rehabilitation centers, assures the best treatment for injured men.

8. SPEEDY AUDITING service, tailored to your needs, assures proper allocation of payroll classification.

9. YOU DEAL DIRECT with company sales, loss prevention, claims and medical personnel. No middlemen.

10. INSURANCE AT LOW COST. Liberty's "expense ratio" on Compensation is lower than any other mutual company. Liberty has returned $363,275,898 in dividend savings to policyholders.

For 20 straight years — the nation's largest writer of Workmen's Compensation Insurance

LIBERTY MUTUAL

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Liberty Mutual Insurance Company • Liberty Mutual Fire Insurance Company • Home Office: Boston

N-III Precision Level

Regardless of field conditions, the N-III meets highest requirements in all around performance

The N-III makes no compromise in accuracy and absolute dependability. Despite unparalleled precision, the instrument is characterized by convenient, rapid set-up and operation.

NOTABLE FEATURES OF THE WILD N-III THREE MODELS

- **Standard Metric**—reading direct to .1mm, estimation to .01mm. Used with Wild precision Invar Rods.
- **Special Industrial**—reading direct to .001 inch. Used with Wild Stainless Steel Rods, 3-ft. and 6-ft. long.
- **Special Engineer**—reading direct to .0005 ft., estimation to .0001 ft. Used with standard leveling rods.
- Complete range of accessories.

PRICES: Standard Metric, $360; Special Industrial, $667; Special Engineer, $595. Write for Booklet N-III.

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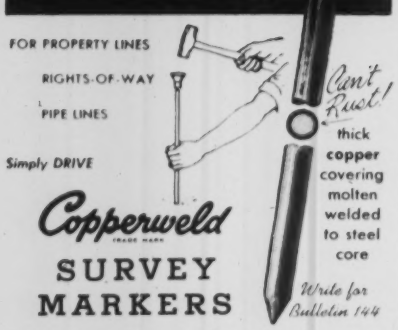
IDENTIFY REFERENCE POINTS Permanently-



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Copperweld* Survey Markers provide permanent, easy-to-locate points of reference that eliminate troublesome disputes. Economical and easy to drive, they can't rot or rust—won't splinter, bend or break. Bronze head can be center-punched and stamped for identification. If larger head is needed, a 4" adapter is available.

*Trade Mark

Furnished in any desired length—in multiples of 6 inches. Packed 10 markers to a carton.

COPPERWELD STEEL COMPANY
WIRE AND CABLE DIVISION Glassport, Pa.

(Continued from page 109)

HOUSTON, TEX. Embe Development Co., 1405 S. Post Oak Rd., Houston, Tex.

Ayrshire Corp., c/o Arthur Coburn, 6825 Academy St., Houston, Tex. CA **$75,000**, storm sewers, CA **$76,120**, sanitary sewers, HOUSTON, TEX. Embe Development Co., 1405 S. Post Oak Rd., Houston, Tex. CD 6/28.

E. M. Bohuskey Constr. Co., 2 mi. W. State Hy. N, Harlingen, Tex., CA **$107,191**, street imprvs. curbs and gutters, McALLEN, TEX. City, City Hall, McAllen, Tex. C. L. Fabian, 903 Quince St., McAllen, Tex., engr. Bids June 24. CD 6/7/56.

▲† **J. G. Watts Constr. Co.**, Wallace Rd., Salem, Ore. LB **$2,513,746**, est. $3,291,639, air warning station and cantonments west of Lakeside, Mont.—radar station on Blackfoot Lookout Mountain; cantonment and housing at foot of mountain, 3 transmitting and receiving twers, Flathead Co., MONTANA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash.

† **MONTANA**—Dpt. Commerce, Bursau P. Rds., Post Office Bldg., Missoula,

O'Neil Constr. Co., Havre, Mont. LB **$360,431** (16 bidders) grade 21.5 -mi. Cut Bank Chalk Butte Rd. on Blackfeet Indian Reservation, incl. 300,000 cu. yds. excav., Glacier Co. Bids July 3. CD 6/19.

Jackson Constr. Co., Rocky Ford, Colo., LB **$92,466** diversion dam, flume, etc. Mount Shavano Trout Rearing Station, SALIDA, COLO. Colorado Game & Fish Comn., State Capitol Bldg., Denver, Colo. Damon Runyon, 6915 Lakewood Pl., Lakewood, engr.-archt.

† **Modern Constr. Co.**, Box 1047, Santa Fe, N. M., LB **$204,042**, est. $210,000. base chapel, Holloman Air Force Base, ENG-29-005-57-13, ALAMOGORDO, N. M. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. Bids June 25. CD 5/29.

† **Ricks Eng. & Electric Co.**, Socorro, N. M., CA **$99,442**, family housing, outside utilities, Sacramento Peak Air Force Station, Inv. No. ENG-29-005-57-83, SACRAMENTO PEAK, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 13. CD 5/15.

† **W. H. Elliott**, 110 Valencia St. N.E., Albuquerque, N. M., LB **$140,205**, community bldgs., West Mesa Air Force Station and Las Cruces Air Force Station, ENG-29-005-57-104, NEW MEXICO. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. Bids June 25. CD 5/29.

BUILDINGS—LB & CA

▲ **H. S. Holtze Constr. Co.**, 2121 4th St., Sioux City, Iowa, LB **$1,701,845**, Central Catholic HIGH SCHOOL, DUBUQUE, IOWA. Catholic Parishes of Dubuque, 2909 Kaufmann Ave., Dubuque, Iowa. Bids June 14. CD 5/21;
Dubuque Plumbing & Heating Co., 100 Bryant St., Dubuque, Iowa, LB **$421,000**, mechanical work (Dubuque, Iowa).

▲ **Bd. Educ.**, George H. Fletcher, comr. School Bldgs., 911 Locust St., St. Louis 1, Mo., rejected bids July 3, Carr Lane School, Jefferson Ave., Cole, Carr and 23rd Sts., ST. LOUIS, MO., LB **$1,235,134**. Will re-advertise. CD 7/9, under LB.

▲ **Chemical & Industrial Corp.**, 256 McCullough St., Cincinnati, O., CA Est. **$4,000,000**, nitric acid and ammonium nitrate PLANT addn., at Atlas, WEBB CITY, MO. Atlas Powder Co., New Murphy Rd. and Concord Pk., Wilmington 99, Del.

▲ **Kaiser Eng. Co., Div. of H. J. Kaiser & Co.**, 1924 Broadway, Oakland, Calif., CA Est. **$15,000,000**, design and constr. PLANT for mfg. Portland and mortar cement, FOREMEN, ARK. Arkansas Cement Corp., subsidiary Arkansas-Louisiana Gas Co., 300 W. Capitol St., Little Rock, Ark. CD 4/5.

Graus Constr. Co., Hastings, Minn., CA **$140,000**, general contract 120x290 ft. WAREHOUSE, BISMARCK, N. D. Farmers Union Central Exchange, Inc., 1200 South Concord St., South St. Paul, Minn. Ellerbe & Co., E. 505 First Natl. Bank Bldg., St. Paul, Minn., archts. CD 6/14/56.

▲ **Hutter Constr. Co.**, Fond du Lac, Wis., CA **$1,000,000** (negotiated contract) 5 story HOSPITAL addn. DEVILS LAKE, N. D. Mercy Hospital, Mary Jerome, admin., Devils Lake, N. D. CD 2/2/54.

Horace Jones, 33 N.E. Expressway, Oklahoma City, Okla., Purchase and Hire. **$700,000**, 110 unit Rio MOTEL, 2400 N.W. 29th St., OKLAHOMA CITY, OKLA. Pete Grant, 1910 North Walker St., Oklahoma City, Okla., archt. CD 4/18.

Mid-Tex Constr. Co., Mineral Wells, Tex. Owner Builds. **$348,000**, 21 DWELLINGS, **$380,500**, 30 DWELLINGS, in Terrace Hills, ANDREWS, TEX. CD 5/10.

Archie C. Fitzgerald, P.O. Box 101, Austin, Tex., CA **$708,000**, WARD BLDG. and COTTAGES at Austin State School, AUSTIN, TEX. Bd. for Texas State Hospital & Special Schools, 4405 Lamar Blvd., Austin, Tex. Bids July 3, awarded July 8. CD 7/11, under LB.

▲ **Vernon & James Smith Co.**, 2151 Fort Worth Ave., Dallas, Tex. Owner Builds. **$366,000**, 15 DWELLINGS; **$357,100**, 11 DWELLINGS; **$364,000**, 14 DWELLINGS, DALLAS, TEX. Grand total $1,187,000. CD 5/16.

Fox & Jacobs Constr. Co., Inc., 2714 McKinney St., Dallas, Tex. Owner Builds. **$355,000**, 14 DWELLINGS; **$385,000**, 20 DWELLINGS, DALLAS, TEX. CD 4/24.

Lacy R. Keele & Son, 2911 S. Lancaster St., Dallas, Tex. Owner Builds. **$366,200**, 24 DWELLINGS; **$386,100**, 28 DWELLINGS, Singing Hills, DALLAS, TEX. CD 5/3.

† **B. B. Adams**, 4206 Mansfield St., Fort Worth, Tex., CA **$123,000** extension to LAUNDRY PLANT and some NURSES HOME remodeling, FORT WORTH, TEX. General Services Admin., P. Bldgs. Service, Region 7, 1114 Commerce St., Dallas 2, Tex. Bids June 25. CD 6/18.

▲ **Thomas S. Byrne, Inc.**, Fort Worth National Bldg., Fort Worth, Tex., LB **$3,883,000**, constr. 5 story addn. to existing HOSPITAL, incl. 150 bed, addnl. surgical facilities, OB dpt., labs, FORT WORTH, TEX. St. Joseph's Hospital, c/o 1400 Main St., Fort Worth, Tex. Bids July 15. CD 6/13.

Brown & Root, Inc., Box 3, Houston, Tex., CA **$790,000**. FOUNDRY EXPANSION, HOUSTON, TEX. Texas Electrical Steel Castings Co., 3601 Gillespie St., Houston, Tex. CD 7/11.

Rouse Bldg. & Lumber Co., 1409 Lincoln St., Houston, Tex., CA **$150,000**. PLANT EXPANSION, HOUSTON, TEX. Herb J. Hawthorne, Inc., 49th St., at N. Main St., Houston, Tex. CD 7/11

W-M Corp., 2401 San Jacinto St., Houston, Tex., CA **$119,999**, AUTO AGENCY, HOUSTON, TEX. Davis Plymouth Inc., c/o Ira Jack Castles, engr., 20 N. Sampson St., Houston, Tex. CD 7/11.

J. L. Hair & Son, 2704 Kemp Blvd., Wichita Falls, Tex., LB **$676,800**, est. $575,000. constr. 30 DUPLEXES and ADMINISTRATION BLDG., WICHITA FALLS, TEX. Wichita Falls Housing Authority, c/o Chester T. Olson, exec. dir., 501 Webster St., Wichita Falls, Tex. Bids July 9. CD 6/6.

Hitz Constr. Co., 211 4th Ave. No., Billings, Mont., CA **$248,000**. 4 story PARKING GARAGE, BILLINGS, MONT. Downtown Parking, Inc., c/o Orr Pickering & Assocs. archts., Fratt Bldg., Billings, Mont. Bids June 7. CD 6/3.

† **U. S. Eng.**, 1709 Jackson St., Omaha, Neb., received no bids July 3, Capehart permanent HOUSING, Pueblo Ordnance Depot, Inv. 25-066-57-60, PUEBLO, COLO. CD 6/11.

† **Ace Constr. Co., Inc.**, RR 4, Albuquerque, N. M., CA **$99,917**, constr. Bldg. No. 803, Inv. No. 292,-57-57, ALBUQUERQUE, N. M., Atomic Energy Comm., P.O. Box 5400, Albuquerque, N. M. Bids June 21. CD 5/20.

McKenzie Constr. Co., 435 E. Mitchell St., San Antonio, Tex., CA **$260,000**. site grading for cement mfg. PLANT, ALBUQUERQUE, N. M. Ideal Cement Co., Denver National Bldg., Denver, Colo. CD 5/15.

† **H. A. Lott, Inc.**, 4822 Allum Rd., Houston 5, Tex., LB **$398,563**, LABORATORY and OFFICE, Inv. 291-57-11, LOS ALAMOS, N. M. Atomic Energy Comm., Los Alamos Area Office, Los Alamos, N. M. Bids June 18. CD 6/7.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Sacramento**—BA 8/7—Sacramento Co. Sanitation Dist. No. 3, c/o Sacramento County Engineer, County Bldg., 7th and I Sts., sewage treatment plant for area north and east of American River, near here, $1,695,000. CD 9/6.

BUILDINGS—BA

Wash., Mountlake Terrace—SCHOOL—BA 8/2—School Dist. 15, Edmonds, five 1 story, masonry 38,000 sq. ft. bldgs for elementary school, on Melody Hill. $500,-000. Plans deposit $50. R. Burkhard, 2121 S.W. 152 St., Seattle, archt. CD 6/15.

▲† **Calif., Lompoc**—HOUSING—BA 8/6—Air Force Ballistic Missile Div., Air Research & Development Command, P. O. Box 262, Inglewood, 800 units Title VIII Housing, Camp Cooke Air Force Base. $14,000,-000. CD 7/9.

▲ **Calif., Redwood City**—SCHOOL—BA 8/7—Sequoia Union High School Dist., Broadway and El Camino Real, one story, 76,442 sq. ft. high school, East Palo Alto. $1,400,000. Janssen, Daseking & Keller, 1616 El Camino Real, Menlo Park, archts. CD 6/19.

▲ **Calif., Pittsburg**—SCHOOL—BA 8/8—Pittsburg Unified School Dist., c/o Secy., Pittsburg, reinf.-con. creative art bldg. addn. to Pittsburg Senior High School. $1,300,000. CD 3/19.

HEAVY CONSTRUCTION—LB & CA

Power Line Erectors, Inc., N. 2018 Waterworks, Spokane, Wash. CA **$99,700**, rehabilitate lines in Mansfield and DeRio areas and build new transmission line in Orondo area, WASHINGTON. Douglas Co. Public Utility Dist., Bridgeport, Wash.

WASHINGTON—State Hy. Comm., Olympia,
A. Johnson & Co., Hoquiam, Wash. LB **$169,170**. (6 bidders), rein-con. box girder bridge over Wishkah River, incl. draining, grading and surf. 0.21 mi. County Rd., FAS No. S-0487 (3). Bids July 2. CD 6/24.

Beall Tank & Pipe Co., 12005 N. Burgarde St., Portland, Ore. CA **$145,820**, est. over $44,000, furnishing 10,640 ft. 24 in. and larger steel pipe for water distribution sys., BELLINGHAM, WASH. City, City Hall, Bellingham, Wash. Grand total $332,182. Bids July 8;
Pacific States C. I. Pipe Co., Portland Trust Bldg., Portland, Ore. CA **$122,597**, 80 tons 12- to 24-in. c.i. pipe and 20 tons c.i. fittings for expansion of water distr. sys. (Bellingham, Wash.);
Wilder Constr. Co., Bellingham, Wash. CA **$53,640**, est. over $44,000 (1 bidder), furnishing, placing 3,360 ft. steel or concrete pipe at freeway crossing (Bellingham, Wash.)

Harbor Constr. Co., 4055 21 Ave. W., Seattle, Wash. LB **$324,430** (7 bidders) est. $358,605. interceptor sewer in Beach Dr. from Alki treatment plant south

to Dawson, Unit No. 1 of West Seattle sys. of interceptor sewers, SEATTLE, WASH. City, County-City Bldg., Seattle 4, Wash. Bids July 3. CD 6/21.

† **H. & M. Constr. Co.,** 2400 Jewell Ave., Denver, Colo. LB **$142,485.** (6 bidders), clear right of way and constr. access roads for Schedules 1 and 3, Santiam-Alvey section of McNary-Alvey 287-kv line No. 1, Inv. 8458, Linn and Lane Counties, OREGON. Bonneville Power Admin., 1001 N. E. Lloyd Blvd., Portland, Ore. CD 6/21.

† **CALIFORNIA**—Bureau P. Rds., Regional Engr., 102 Old Mint Bldg., 5th and Mission St., San Francisco, **M. Malfitano, Inc.,** 415 Industrial Rd., Pittsburg, Calif. LB **$344,476** (16 bidders) grading, base course and surf. 1.2 mi. Bolinger Canyon Rd., near Hayward, Contra Costa Co.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, bids opened July 5,
Calif.—**Tomei Constr.** 4737 Orion Ave., Van Nuys, Calif. LB **$1,095,720.** (4 bidders) about 2.4 mi. Hollywood Freeway widened and surf. rein. con. overcrossing constr. and 1 rein. con. pedestrian undercrossing, Los Angeles Co.;
Calif.—**Vernon Paving Co.,** 3200 E. Vernon Ave., Los Angeles, Calif. LB **$320,566.** (13 bidders) about 1.9 mi. widened and surf. between 115 St. in Hawthorne and Hillcrest Blvd. in Inglewood, Los Angeles Co. CD 6/7.

CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento, **Rockport Redwood Co.,** 620 Market St., San Francisco, Calif. CA **$508,510.** grading, surf. 3.9 mi. Sign Rtes. 49, 108 and 120 between 1 mi. west of Yosemite Junction and Montezuma Rd., Tuolumne Co. Bids June 26, awarded July 5. CD 7/3, under LB.

† **Basalt Rock Co., Inc.,** 8th and River Sts., Napa, Calif. LB **$444,345,** est. $518,223. (8 bidders) levee constr. right bank, Sacramento River, vicinity Monument Bend, Mile 66.9 to Mile 68.3 ENG-04-167-57-113, CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids July 9. CD 6/27.

† **Dana Co., Inc.,** P. O. Box 117, Apple Valley, Calif. CA **$158,214,** repair and resurface roads, parking areas and storage area, Nebo and Yermo Areas, Marine Corps supply center, Barstow, Spec. 11711-57, BARSTOW, CALIF. Eleventh Naval Dist., 1600 Pacific Hy., San Diego, Calif. Awarded June 20. CD 8/27.

† **E. F. Grandy,** P. O. Box 401 Laguna Beach, Calif. LB **$315,443,** (8 bidders) turbo-jet engine Test Cells, El Toro Marine Corps Air Station, Oceanside, Spec. 11724-57, EL TORO, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids June 26. CD 8/27.

Arthur B. Siri, 1357 Cleveland St., Santa Rosa, Calif. CA **$98,782** (2 bidders) imprv. Harris and E Sts., EUREKA, CALIF. City, City Hall, Eureka, Calif.

Lee J. Immel, 13555 San Pablo Ave., San Pablo, Calif. LB **$223,426** (6 bidders) imprv. Contra Costa St., Georgia and Annette Sts. (surf., base, curbs, gutters etc.) near FAIRFIELD, CALIF. Solano Co., County Clerk, Courthouse, Fairfield, Calif. CD 8/10.

Garland Steel Co., P. O. Box 2049, Phoenix, Ariz. CA **$179,420** (11 bidders) two 2 mg water storage tanks, for arterial water distr. sys., Unit B, Riverside, INDIO, CALIF. City, City Hall, Indio Calif. Bids June 26. CD 12/14.

N. P. Van Valkenburgh Co., 1627 N. Chico Ave., El Monte, Calif. LB **$78,272** (6 bidders) Frick Springs Pipe Line 17,800 lin. ft. 85 in. lined and coated steel water pipe, LOMPOC, CALIF. City Council, City Hall, Lompoc, Calif. Bids June 18. CD 6/5.

J. S. Barrett, P. O. Box 2126, Santa Ana, Calif. LB **$220,047** (7 bidders) Joint Outfall Sewer "H" Unit IG, Sect. 2, Huntington Park, LOS ANGELES, CALIF. Los Angeles County Sanitation Dist. No. 2, 2020 Beverly Blvd., Los Angeles, Calif. Bids June 26. CD 6/4.

George Savala Paving Co., 213 S. Hawthorne Blvd., Hawthorne, Calif. CA **$79,133,** imprv. Normandie Ave., Verona Ave. to 48th St., LOS ANGELES, CALIF. City Bd. P. Wks., City Hall, Los Angeles, Calif. Bids June 12, awarded June 19. CD 10/13/55.

Madonna Constr. Co., & B. W. Kuhn, P. O. Box 599, Torrance, Calif. (joint venture) LB **$390,506,** (6 bidders) imprv. Western Ave., O'Farrell to 9th Sts., LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids June 19. CD 6/7.

† **T. A. Stanfield,** 3491 St., San Diego, Calif. CA **$697,000.** photographic laboratory, Miramar Naval Air Station, Spec. 9962-56, MIRAMAR, CALIF. Eleventh Naval Dist., 1600 Pacific Hy., San Diego, Calif. Bids June 25, awarded June 26. CD 8/27.

† **S. A. Alper & R. E. Ziebarth,** P. O. Box 568, Torrance, Calif. CA **$726,444** (6 bidders) power and communications for FPS-16 Radars, Spec. 11747, San Nicholas Island, Naval Air Missile Test Station, POINT MUGU, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids June 26. CD 10/22/54.

Brighton Sand & Gravel Co., Box 1, Perkins, Calif. LB **$257,446** (1 bidder) Barrett Hills Assessment Dist. imprvs. (streets, sidewalks, curbs, gutters, sewers, etc.) near SACRAMENTO, CALIF. Sacramento Co., c/o County Clerk, Courthouse, Sacramento, Calif.

A. Teichert & Son, Inc., Box 928, Sacramento, Calif. LB **$87,382** (6 bidders) imprv. Johnson Industrial Park, (curbs, gutters, sewer, storm drains, streets) near SACRAMENTO, CALIF. Sacramento Co., c/o County Clerk, Courthouse, Sacramento, Calif.

† **U. S. Eng.,** 1209 8th St., Sacramento, Calif. cancelled bids opened July 12, for rehabilitation sewage tr. plant at Mather Air Force Base, ENG-04-167-57-67, SACRAMENTO, CALIF. Est. **$240,000.** CD 6/21.

Wyckoff & Bianchi, P. O. Box 602, Camarillo, Calif. LB **$169,875** (7 bidders) site grading at Madison High School, SAN DIEGO, CALIF. San Diego Unified School Dist., 825 Union Ave., San Diego, Calif. Bids June 25. CD 11/9, under public bldgs.

Griffith Co., P. O. Box 3187, Hillcrest Station, San Diego, Calif. LB **$76,557** (5 bidders) resurf. 1,874,870 sq. ft. streets, Doc 533730, SAN DIEGO, CALIF. City, Civic Center, 1600 Pacific Hy., San Diego, Calif.

Martin F. Kordick, 325 N. Santa Anita Ave., Arcadia, Calif. CA **$65,996,** sanitary sewers in Thockerey and Leaf Aves., WEST COVINA, CALIF. City, City Hall, West Covina, Calif. Bids June 7.

BUILDINGS—LB & CA

▲† **M. M. Sundt Constr. Co.,** 440 E. Park St., Tucson, Ariz. LB **$368,000,** est. $425,000 (4 bidders) BACHELOR OFFICERS QUARTERS, Yuma Test Station, ENG-57-115, YUMA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 26. CD 6/5.

Bell & Valdez Development Co., 14212 Eastgate Hill Blvd., Bellevue, Wash., Day Labor, **$624,100.** 44 HOUSES, S.E. 10 St. and 165th S.E., BELLEVUE, WASH. CD 12/15/54.

▲† **E. H. Moore & Co.,** 693 Mission St., San Francisco, Calif. CA **$1,394,300.** 100 family QUARTERS, ENG-45-108-57-138. FORT LEWIS, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 21. CD 6/28.

▲ **Eric E. Plath, Inc.,** East 3004 Garland Ave., Spokane, Wash. CA **$932,000.** general contract DAIRY PROCESSING PLANT, SPOKANE, WASH. Inland Empire Dairy Assn., E. 320 Grant Ave., Spokane, Wash. CD 6/28, under LB.;
Brown-Johnston Co., North 118 Lincoln St., Spokane, Wash. CA **$115,000.** electrical contract (Spokane, Wash.).

▲ **Johnson, Busboom & Rauh,** N. 601 Cedar St., Spokane, Wash., LB **$799,940** (4 bidders), general contract 3 story, 62x66 ft., 2 story, 49x206 ft., and 2 story, 49x206 ft. rein.-con. ADMISSIONS and SECURITY BLDG. at State Penitentiary, WALLA WALLA, WASH. Dpt. General Admin., Olympia, Wash. Bids July 12, CD 6/5;
W. R. O'Rourke P. & H. Co., Walla Walla, Wash., LB **$378,234** (6 bidders), mechanical (Walla Walla, Wash.).

L. P. Scheer, 2081½ Orange St., Redlands, Calif., LB **$446,000** (5 bidders) 16,000 sq. ft., tilt-up concrete CAFETERIA, MUSIC BLDG., CLASSROOM and SHOPS, BANNING, CALIF. Banning Union High School Dist., Banning, Calif. Bids June 18. CD 10/17.

Fiske Bros., 19200 S. Bechard St., Artesia, Calif., LB **$359,963** (6 bidders) two 31,898 sq. ft. concrete slab, frame, stucco CLASSROOM BLDGS. BELLFLOWER, CALIF. Bell Flower Christian School Dist., Bellflower, Calif. Harold C. Wildman, 3701 Atlantic Blvd., Long Beach, Calif., archt. Bids June 25. CD 1/4.

▲ **Riley-Stoker Corp.,** 9 Neponset St., Worcester, Mass. CA **$1,546,972.** furnishing, installing STEAM GENERATING UNIT No. 5 at Olive and Lake Sts., BURBANK, CALIF. City, City Hall, Burbank, Calif. Bids May 29. CD 4/25.

J. B. Sooy Constr. Co., 508 S. 1st. St., Redlands, Calif., CA **$506,000,** Norco JUNIOR HIGH SCHOOL, CORONA, CALIF. Corona Unified School Dist., 900 Howard St., Corona, Calif. Bids June 3, awarded July 3. CD 6/14, under LB.

▲ **Cal-Central Constr. Co.,** 7500 14 Ave., Sacramento, Calif. LB **$1,426,113.** (11 bidders) SOIL AND PLANT NUTRITION BLDGS. at Davis Campus, DAVIS, CALIF. University of California, Bd. Regents, Administration Bldg., Davis, Calif. CD 12/3.

† **Vinnell Co., Inc.,** 1145 Westminister Ave., Alhambra, Calif. LB **$977,612.** (8 bidders) TRAINING FACILITY, Camp Cooke, ENG-04-353-57-114, LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 27. CD 6/10.

Associated Piping & Eng. Co., Inc., 1707 W. Compton Blvd., Compton, Calif., LB **$306,500,** main steam reheat and boiler feed piping, etc., scattergood STEAM PLANT, Playa Del Rey, LOS ANGELES, CALIF. Los Angeles Water & Power Dpt., 311 S. Spring St., Los Angeles, Calif. Bids June 10. CD 6/3.

Brunzell Constr. Co., 2945 Higuera St., Culver City, Calif., CA **$627,670,** 3 story, poured-in-place concrete DORMITORY, LOS ANGELES, CALIF. Loyola University, c/o Albert C. Martin & Assocs., archts., 333 S. Beaudry Ave., Los Angeles, Calif. Bids May 17. CD 5/27, under LB.

Leon Slavin, 470 S. San Vicente Blvd., Los Angeles, Calif., LB **$406,000,** est. $364,000 (2 bidders) Selma Ave., Clifford St., and Wonderland Ave. SCHOOLS, LOS ANGELES, CALIF. Los Angeles Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids June 21. CD 6/17.

Wapner & Fremer, 5542 Cahuenga Blvd., North Hollywood, Calif., CA **$468,000;** 1½ story, rein.-con. POLICE STATION, North Hollywood, LOS ANGELES, CALIF. Los Angeles City Bd. P. Wks., Los Angeles, Calif. Bids June 5, awarded June 24. CD 10/17/55.

Ralph T. Viola, 1626 Pine St., Oxnard, Calif. LB **$977,000.** (8 bidders) 2 story, frame, stucco, 100 unit Public HOUSING Proj. No. Cal. 31-2, OXNARD, CALIF. Housing Authority of Oxnard, 1220 W. Tenth St., Oxnard, Calif. Bids June 19. CD 6/3.

Hub-Pacific Bldg. Co., 1020 Doyle St., Menlo Park, Calif., LB **$353,800** Base Bid (7 bidders) 1 story T Shaped, partial bsmnt. LIBRARY, adjacent to City Hall on Newell

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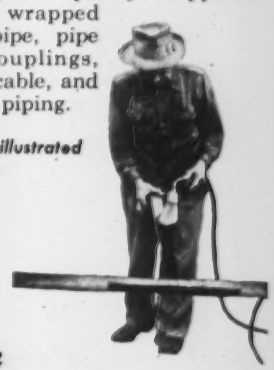

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Rd., PALO ALTO, CALIF. City, c/o City Clerk, City Hall, Palo Alto, Calif. Bids July 3. CD 6/13.

† **Louis C. Dunn, Inc.**, 681 Market St., San Francisco, Calif., CA $515,421, 1 story, 23,000 sq. ft. concrete block ENGINEERING FIELD MAINTENANCE SHOP BLDG., ENG-57-602, PRESIDIO OF SAN FRANCISCO, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Awarded July 2. CD 7/3, under LB.

▲ **Lathrop Co.**, 806 Hearst Ave., Berkeley, Calif. LB $1,183,000. (4 bidders) 2 and 3 story rein.-con. APARTMENT HOUSE built over a portion of San Francisco Bay on concrete Piles, SAUSALITO, CALIF. John Ostrowski, 400 Montgomery St., San Francisco, Calif. CD 10/18.

Hilp & Rhodes, 299 Kansas St., San Francisco, Calif., CA Est. $170,000, corrugated steel ANTENNA TESTING BLDG., SUNNYVALE, CALIF. Purchasing Office, Lockheed Aircraft Co., Sunnyvale, Calif. Bids June 3. CD 6/13.

Oltmans Constr. Co., Inc., 516 S. Monterey Pass Rd., Monterey Park, Calif., LB $110,843 (9 bidders) 1 story, rein.-con. tilt-up, 10,000 sq. ft. SERVICE BLDG. and OFFICE, TEMPLE CITY, CALIF. Sears, Roebuck & Co., 2650 E. Olympic St., Los Angeles, Calif. F. Thomas Collins, 9827 Remer St., El Monte, Calif., engr. Bids June 21.

▲ **Steed Bros.**, P. O. Box 350, Alhambra, Calif., CA $2,482,200, est. $2,000,000, 4 story, 104,000 sq. ft., rein.-con. PRESBYTERIAN INTERCOMMUNITY HOSPITAL, WHITTIER, CALIF. Presbyterian Intercommunity Hospital, 215 W. Hadley St., Whittier, Calif. Bids June 21, awarded July 5. CD 7/10, under LB.

CANADA

BUILDINGS—BA

▲ **Sask., Estevan**—STEAM POWER PLANT—BA 7/31—Saskatchewan Power Corp., 1744 Cornwall St., Regina, superstructures only for (1) main power station (2) office and workshop bldg. incl. plumbing, heating and air-conditioning (3) system control bldg., incl. foundations (4) garage bldg. incl. foundations (5) coal handling plant (6) weigh scale house (7) fire pump house (8) C. W. pump house, 1 story, 170x270 ft., structural steel frame main station, at steam power plant Boundary Dam Generating Station on Long Creek Allwad & Gouinlock, 245 Davenport Rd., Toronto, Ont., archts. Ewbank & Partners (Canada) Ltd., 200 Bloor St. E., Toronto, Ont., consult. engrs. CD 2/24/56.

▲ **Ont., Prescott**—SCHOOL—BA 8/1—South Grenville District High School Bd., P. O. Box 772, 220x470 ft. L-shaped, concrete, brick, steel high school. $1,125,000. Drever & Smith, 81 Brock St., Kingston, archts. P. T. Mikluchin & Assocs., 717 Churcy St., Toronto, engrs. CD 5/2.

HEAVY CONSTRUCTION—LB & CA

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria.

General Constr. Co., Ltd., Granville Island, Vancouver, B. C., CA $873,011, reconstr. Victor Lake-Summit Lake section Trans-Canada Hy., in Revelstoke Electoral Dist. Proj. No. 813 B. Awarded July 4. CD 6/3, under LB.

BRITISH COLUMBIA—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.,

Mannix Ltd., 322 Seventh St. S.W., Calgary, Alta., CA $663,350, clearing, grubbing, Mile 0-Mile 13 Trans-Canada Hy. Glacier National Park, Glacier.

Saunders & Howell Ltd., Carbonear, Newfoundland, LB $145,000 (3 bidders), 24-man barrack bldg. at Naval Radio Station, GANDER, NEWFOUNDLAND. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
Greenwood Constr. Co., P. O. Box 128, Grand Valley, Ont., LB $91,601 (14 bidders), granular base, hot mix paving, and drainage 8.5 mi. Hy. 89, Rosemount to Primrose. Contr. 57-94, Rosemount. CD 6/20.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
Dibblee Constr. Co. Ltd., 384 Bank St., Ottawa, Ont., LB $137,322 (6 bidders), granular base and hot mix paving 9.86 mi. Hy. 66 from Kirkland Lake to Hy. 11. Contr. 57-77, Kirkland Lake. CD 6/18.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
Ont.—**K. L. Beamish Constr. Co. Ltd.**, Box 189, Thornhill, Ont., LB $222,810 (6 bidders), structures, grading and culverts interchange at Hy. 401 and 27 (57-82), Toronto;
Ont.—**Barnett-McQueen Co. Ltd.**, 450 Christina St., Fort William, LB $204,437 (3 bidders) Black River Bridge, Hy. 17 (Trans-Canada), 4 mi. N.E. of Heron Bay. (57-83), Heron Bay.

North Shore Constr. Co. Ltd., Canada Cement Bldg., Montreal, Ont., CA $528,755 (7 bidders), grading, culverts, granular base and hot mix paving, Hy. 401 from west limits Hy. 29 interchange to North Augusta Rd., Incl. Elizabethtown structure 10A at Hy. 29, BROCKVILLE, ONT. Dpt. Hys., Parliament Bldgs., Toronto, Ont. Awarded June 27.

Riverside Constr. Co., Hamilton Rd. East, London, Ont., CA $248,942, approaches in connection with Highbury Ave. overpass at C.P. Ry. tracks, LONDON, ONT. City Council, Mayor Ray Dennis, and C.P. Railway, C. A. Colpitts, ch. engr., Montreal 3, Que. Eric Skelton, City Hall, London, Ont., engr. M. M. Dillon, 141 Maple St., London, Ont., consult. engr. Bids May 29, awarded July 4. CD 5/13.

Humphries & Glasgow Ltd., 837 Eglinton Ave. W., Toronto, Ont., LB $234,794 (9 bidders), complete constr. extensions to sewage treatment plant, consisting grit removal facilities, primary settling tanks, aeration tanks, final settling tanks, chlornation facilities, digestion tank, blower bldg., etc., RICHMOND HILL, ONT. Town, Town Hall, Richmond Hill, Ont. CD 6/6.

Durnano Constr. Ltd., 1060 Birchmount Rd., Toronto, Ont., LB $82,074, constr. approx. 2,750 lin. ft. 24 and 27 in. concrete sanitary sewer, Glenmount area, TORONTO, ONT. North York Twp., 5000 Yonge St., Willowdale, Ont.

Camson Ltd., 2916 Bloor St. W., Toronto, Ont., CA $200,000, curling rink, lounge and staff quarters, TORONTO, ONT. St. Georges Golf & Country Club, Islington Ave., Humber Valley Village, Toronto, Ont. Flanagan & Black, 3086 Bloor St. W., Toronto, Ont., engrs. Basil Capes, 1 Hill Heights Rd., Toronto, Ont., archts. Awarded June 25.

G. M. Gest Ltd., 128 Elmslie Ave., Montreal, Que., CA $283,136, supply, install electrical sys. at the Cote St. Catherine Lock, Lachine section, St. Lawrence Seaway, QUEBEC. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids April 24. Awarded June 28. CD 3/25.

J. Lamontagne Ltee., 6555 Cote des Neiges Rd., Montreal, Que., CA $412,052 (2 bidders), supply materials and constr. bldgs., Lachine section of the seaway; CA $157,715 (2 bidders) supply materials and constr. bldgs. in International Rapids section of the Seaway, QUEBEC, St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids July 3. CD 6/21.
Collet Freres Ltd., 1978 Parthenais St., Montreal, Que., LB $300,000, supply material and constr. of bldgs., Soulanges section of Seaway, (Quebec).

QUEBEC—Provincial Rds. Dpt., Parliament Bldgs., Quebec City.

H. J. O'Connell Ltd., 6460 Cote de Liesse Rd., Montreal, Que., CA Est. $350,000. constr. Sherbrook-Magog Hy., Sherbrooke. Awarded July 2.

▲ **Foundation Co. of Canada, Ltd.**, 1900 Sherbrooke St., W., Montreal, Que., LB $2,033,778 (6 bidders) constr. WHARF extension at Sections 94-96 at Montreal Harbor, MONTREAL, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Bids June 27. CD 6/17.

▲ **Spino Constr. Ltd.**, 200 Sauve St. W., Montreal, Que. LB $1,568,860, second section of Decarie-Raimbault Collector Sewer between Dudemaine St. and point south of Henri Bourassa Blvd., MONTREAL, QUE. City, City Hall, Montreal, Que. Bids July 10. CD 6/14.

BUILDINGS—LB & CA

▲ **Christensen & Macdonald Ltd.**, 612 Tegler Bldg., Edmonton, Alta., CA Est. About $1,000,000. 6 story, bsmnt., 100x320 ft., rein.-con. PARKING GARAGE, 103 St., EDMONTON, ALTA. Hudson's Bay Co., Jasper Ave., Edmonton, Alta. CD 11/15.

▲ **Boyd & Sohlman Builders**, 218 Ray Blvd., Fort Williams, Ont., CA Est. $1,000,000, HOUSING DEVELOPMENT, 100 homes, Westmount subdivision, FORT WILLIAM, ONT. Central Mortgage & Housing Corp., Ltd., 870 Portage St., Winnipeg, Man.,

Ellis Don Constr. Co., Box 852, London, Ont., CA Est. $500,000. 1 story, 230x330 ft., brick, cement block PLANT addn., LONDON, ONT. Gair of Canada, 745 York St., London, Ont. M. M. Dillon Co., 141 Maple St., London, engr.

Frid Constr. Co., Harbor Admin. Bldg., Hamilton, Ont., CA Est. $400,000, 2 story, 50x135 ft. stone, steel BANK, LONDON, ONT. Bank of Montreal, 119 St Jas W., Montreal, Que. O. Ray Moore & Co., 260½ Dundas St., London, Ont., archts. Awarded July 4.

King Contrg. Ltd., 1399 2 Ave., Owen Sound, Ont., CA Total $350,000, preparation of land and tank bases, bulk storage PLANT, OWEN SOUND, ONT. Canadian Oil Companies, Ltd., 204 Richmond St. W., Toronto, Ont. Awarded June 28.
Horton Steel Works Ltd., 25 Adelaide St. W., Toronto, Ont., sphere and tanks (Owen Sound, Ont.).

▲ **Charles Duranceau, Ltee**, 2545 Jacques Heetel St., Montreal, Que., LB $2,603,951 (6 bidders) 6 story, 98x157 ft., rein.-con. frame, slab stone, brick, block CITY HALL ANNEX, east of present annex, MONTREAL, QUE. City, City Hall, Montreal, Que. Bids July 10. CD 5/29.

▲ **J. L. Guay & Frere Ltee.**, 6900 Cote des Neiges Rd., Montreal, Que., LB $2,500,000 (5 bidders) 4 story, 178x38 ft. main BUILDING, 40x147 ft. CHAPEL and two 38x200 ft. wings, rein.-con., frame, brick, Old Peoples' HOME, LeFoyer Rousseflot, Sherbrooke St. E., MONTREAL, QUE. Rev. Grey Nuns, Mother House, 1190 Guy St., Montreal, Que. Jean-Marie Lafleur, 17 Nicholson St., Valleyfield, Que., archt. Lafonde & Vaolis, 606 Cathcart St., Montreal, Que., engrs.

ALASKA

HEAVY CONSTRUCTION—LB & CA

† **Central Constr. Co.**, Medical Arts Bldg., Seattle, Wash., LB $778,802, rehabilitating airfield by installing 33,100 ft. 6- to 18-in. corrugated metal pipe drains, compacting 60,000 crushed rock sub-base on runways and installing runway lighting sys., Inv. 57-92, NOME, ALASKA. Civil Aeronautics Admin., Federal Bldg., Anchorage, Alaska. Bids June 27. CD 6/17.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ **AUSTRALIA**—Country Roads Bd., Exhibition Bldg., Carlton, Melbourne,

Utah Constr. Co., 100 Bush St., San Francisco 4, Calif., U.S.A., CA $8,200,000. King St. Bridge in Melbourne. CD 9/28.

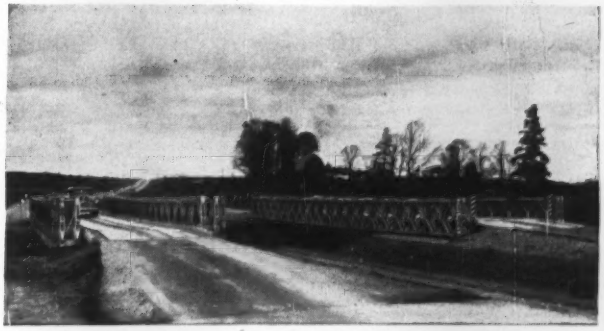
(Continued on page 116)

BAILEY BRIDGING

The most modern form of prefabricated bridge construction in the world

TEMPORARY or PERMANENT

- EASILY ERECTED BY UNSKILLED LABOR
- HIGH STRENGTH TO WEIGHT RATIO
- PRACTICALLY 100% SALVAGEABLE
- INTERCHANGEABLE STANDARD COMPONENTS
- **LOW COSTING AND AVAILABLE IMMEDIATELY FROM STOCK**



Traffic is rolling within hours, due to the speedy erection of the Bailey Bridge.

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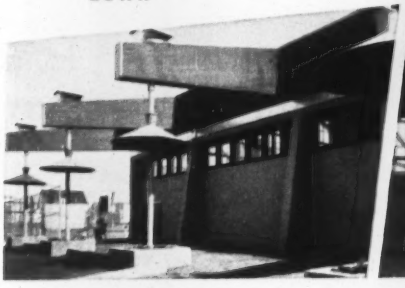
Cantilevered Roof Spans

. . . with supporting girders held up by holding them down



The 81′x110′ Upper Noe Fieldhouse of the San Francisco Department of Parks is a distinctive example of engineered timber construction.

Glulam timber girders extend 20 feet beyond the outer walls to form outboard anchor arms tied down with 2⅜″ tie rods to a continuous 6′x10′ concrete counterweight below ground.

There are no stress connections at the peak; a truss merely provides a diaphragm connection which holds the clerestory windows. Literally, the roof is held *up* by holding the girders *down!*

Architects: Donald Beach Kirby and Associates, San Francisco. General contractor: James I. Barnes, Redwood City, Calif.

For information on other design possibilities of glulam timbers, see your nearest Timber Structures representative, or write us directly.

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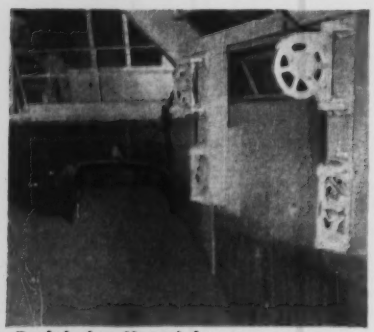
these jobs were done at a lower cost with the

SAUERMAN METHOD

Silt Removal by Slackline Cableway keeps channel clear for irrigation project. Bucket digs, then conveys spoil to downstream side of dam. (*Sauerman News 146*).

Digging Gravel for a plant supplying aggregate for 82 miles of turnpike, this 5-yd. DragScraper often operates around the clock. It has excavated over a million tons. (*Sauerman News 145*).



Reclaiming Material to hopper from all sections of a 500-ft. warehouse, the estimated operating cost of this DragScraper Machine is 2.1 cents per ton. (*Sauerman News 145*).

•

You'll find a complete description of the Sauerman Method in Catalog A, DragScrapers; Catalog C, Slackline Cableways; and Catalog E, Bulk Storage by Scraper.

SAUERMAN BROS., Inc. 632 S. 28th STREET BELLWOOD, ILLINOIS

(Continued from page 114)

PROPOSED PROJECTS

WATER SUPPLY

Conn., Wallingford—Town, Water Dpt., 284 Washington St., expand and extend water supply sys., and enlarge filter plant, $400,000. Henry Souther Eng. Corp., 11 Laurel St., Hartford, consult. engrs. CD 5/9.

Idaho, Garden City—City, City Hall, 45,000 ft. water distr. lines, well and 26,000 ft. sewage collection lines, $400,000. CD 7/25/56.

Ind., Kendallville—Bd. P. Wks. & Safety, WW expansion, $350,000.

Kan., Gardner—City, City Hall, water treatment plant and sys. imprvs. $120,000. H. R. Hunter, Wichita, consult. engr. Bids in August.

N. J., Waldwick—Waldwick Borough, Borough Hall, installing well and 12 in. water main under Route 17 and 8 in. main along west shoulder of Rte. 17, $128,000. Fraleigh & Schwanewede, 201 The Plaza, Teaneck, consult. engrs.

N. Y., Yonkers—Common Council, City Hall, 1 m.g. water storage tank in northeastern section of city, $300,000.

O., Obetz—Village, Village Hall, water treatment plant and distr. lines, $570,000. Snyder, McLellan & Assoc., Hillsboro, Ind., consult. engrs.

Tenn., Whitwell—City, City Hall, water sys. $440,000.

Tex., Beaumont—City, City Hall, voted bonds water laterals, mains, $800,000; water storage, $125,000. CD 9/6.

SEWERS, WASTE DISPOSAL

Ill., Belleville—City, Mayor Jerome Munie, City Hall, repairs to sewage disposal plant resulting from flood damage. $150,000.

▲ **Ill., Chicago**—City, City Hall, auxiliary sewer outlet, Blackhawk St. between North Branch and Noble, $340,000; Wellington Ave. sys., $2,500,000; Contr. 48, 10,000 ft. auxiliary outlet sewers, Central South Side sys., $1,000,000. CD 6/10.

Kan., Atchison—City, City Hall, sewage plant, $120,000. Servis, Van Doran & Hazard, Topeka, consult. engrs.

Ky., Newport—City, City Bldg., sanitary sewerage sys., Riddleview Subdivision, $200,000. Morlidge & Morlidge, 104 W. 4th St., Cincinnati, O., consult. engrs.

Mich., Ironwood—City, Lloyd Waterstrout, city mgr., Ironwood, sewage disposal plant, teratment facilities, $630,000. Hitchcock & Estabrook, Inc., Lincoln Bldg., Minneapolis, Minn., consult. engr.

▲ **Minn., St. Louis Park**—City, J. Justad, clk., storm sewerage sys. for whole city, $6,000,000. Banister Eng. Co., 1594 University Ave., St. Paul, consult. engr. Constr. 1957-58. CD 6/24.

Mo., Maryland Heights (St. Louis 14, P. O.)—Maryland Heights Sanitary Sewer Dist., T. Douglas Moore, atty., 20 S. Central Ave., Clayton, Zone 5, sanitary sewers and sewage treatment plant, West of Lindbergh Blvd., north and south from Dorsett Rd., $100,000.

▲ **Mo., Raytown**—City, City Hall, voted bonds June 25, sanitary sewer extens., and 2 trunk lines, $1,095,000. B. L. Oliver & Co., 1805 Grand Ave., Kansas City, Mo., consult. engrs. CD 6/18.

Wash., Shelton—City, City Hall, gravity line and other imprvs. to sanitary sewerage sys. $125,000. Carey & Kramer, 1917 1 Ave., Seattle, Zone 1, consult. engrs. CD 4/25.

BRIDGES

Mich., Battle Creek—City, Joseph M. Boos, city clk., concrete, steel bridge over Kalamazoo River, Kendall St. $310,000; rein.-con., steel bridge over Kalamazoo River, Angell St., $280,000. DeLeuw, Cather & Co., 98 S. McCamley St., consult. engrs.

Mo., Clayton (St. Louis 5 P. O.)—St. Louis Co., Luman F. Mathews, co. superv., Court House, Clayton, Zone 5, repairs and rebuilding of county bridges on 700-mi. road system $100,000.

O., Wapakoneta—Comrs. Auglaize Co., Court House, Wapakoneta, 5 concrete bridges to eliminate existing one lane bridges, $138,000. Bids in July.

STREETS AND ROADS

▲ **Calif., Mountain View**—City, c/o Mayor, City Hall, imprv. various streets. $1,631,000.

Ill., Belleville—City, Mayor Jerome Munie, City Hall, repairs to streets and bridges damaged by recent floods. $150,000.

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

Becker Co.—c. conc. paving 10.5 mi. TH 10, from 1 mi. east of Lake Park to Detroit Lakes, Lake Park. $785,000.

Polk Co.—c. conc. paving 12.3 mi. from pt. 3.8 mi. south of Bygland to East Grand Forks, Tr. Hy. 220. $900,000.

St. Louis Co.—5.1 mi. plt. mix bit. surf. and c. conc. paving Hibbing Belt Line TH 216, E of Brookline. $800,000.

Scott Co.—c. conc. paving 0.8 mi. south of south. limits of Shakopee 59, Shakopee, $175,000.

Washington Co.—grading, paving 9.9 mi. road Newport to Jct. TH 10, Newport. $900,000.

Mo., Clatyon (St. Louis 5 P. O.)—St. Louis Co., Luman F. Matthews, co. superv., Court House, Clayton, Zone 5, repairs to 700 mi. system of roads, $300,000.

▲ **N. J., Atlantic City**—City, City Hall, boulevard entrance to city. $1,800,000. George Swinton, city engr.

OHIO—State Hy. Dpt., State Dpts. Bldg., Columbus, Zone 15,

Ashtabula Co.—imprvs. to Rte. 7, within limits of Conneaut. $353,500.

Wash., Prosser—Benton Co., Court House, road to Priest Rapids on Columbia River over Rattlesnake Ridge, involving 4.5 mi. heavy constr. and 10 mi. light constr. $300,000. CD 9/15/55.

EARTHWORK, WATERWAYS

Conn., Norwalk—City, City Hall, erosion control, Shady Beach, South Norwalk. $114,000.

N. J., Ocean City—City Comm., erosion repair and prevention proj. incl. jetty work, $50,000; dredging work, $50,000.

Tex., Anahuac — Chambers-Liberty County Navigation Dist., Anahuac, channel dredging across Galveston and Trinity Bays, Chambers and Liberty Counties. $300,000.

AIRPORTS

Conn., East Haven—MEMORIAL BLDG.—Civil Air Patrol, Municipal Airport, Burr St., plans by Carl R. Blancharo, 111 Whitney Ave., New Haven, memorial bldg., offices and field house for Civil Air Patrol, at New Haven Municipal Airport. $145,000. Hubbard, Lawless & Blakeley, 110 Whitney Ave., New Haven, consult. engrs. CD 4/27/56.

▲ **Tex., Dallas**—AIRPORT IMPRVS.—City, City Hall, plans by Jack Corgan, 308 Tower Pet. Bldg., Love Field Airport imprvs., shop-auto, hangar, maintenance shop. $1,500,000. CD 8/9/55.

PUBLIC BUILDINGS

▲ **Calif., Huntington Beach**—SCHOOL—Huntington Beach Union High School Dist. plans by Neptune & Thomas, 1560 Colorado St., Pasadena, 182,000 sq. ft. precast concrete Westminster High School. $3,400,000. CD 10/22.

▲ **Calif., Oakland**—SCHOOL—Oakland Bd. Educ., c/o Supt., 1025 2nd Ave., high School, Skyline Blvd. and Fernhoff Rd. $4,000,000. CD 6/8/56.

Calif., Redwood City—SCHOOL—San Mateo Co. Courthouse, school for handicapped children, near San Mateo. $500,000.

▲ **Calif., San Francisco**—POWER STATION—City and San Francisco Co. P. Utilities Comn., City Hall, bond election Nov. 5, convert present electrical power station to automatic sys. $1,300,000. CD 11/13/47, under streets and Roads.

Colo., Boulder—LIBRARY—City, Boulder Co., City & County Bldg., library bldg. $425,000.

Conn., East Haven—SCHOOL—Town, Town Hall, plans by Schilling & Goldbecker, 18 Trumbull St., New Haven, Dear Run School addn., Foxon, $345,000. CD 10/17.

▲ **Conn., New London**—SCHOOL—Town, Town Hall, plans by Lyons, Mather & Griesbaber, 154 Broad St., Junior High School, Colman St. $2,500,000. CD 5/31/56.

Conn., West Hartford—SCHOOL—Town, Town Hall, plans by Willard Wilkins, 945 Asylum Ave., southwest Elementary School, Tunxis Rd., $350,000. CD 5/9/56.

▲ **Ind., Lafayette**—LABORATORY—Purdue University, remodel Duncan Laboratory, $653,000. Home Economics Bldg. rehabilitation. $835,000.

Ind., Shelbyville—HIGH SCHOOL—School Bd. plans by Lennox, Matthews, Simmons & Ford, Inc., engr.-archt., 3949 Meadows Lane, Indianapolis, Zone 5, rein-con., steel high school. $700,000.

Kan., Buhler—SCHOOL—Buhler High School Dist. 10, Reno Co., voted $490,000 bonds June 22, school addn. CD 7/8.

▲ **Kan., Lawrence**—COLLEGE—Bd. Educ., City Hall, plans by C. K. Marshall, 110 Taylor St., Topeka, Junior College. $1,000,000.

Me., Auburn—SCHOOL—City, School Dpt., plans by Irving W. Hersey Assoc., Town Hall Bldg., Durham, N. H., school. $350,000. Constr. 1958. CD 2/14.

Mass., Billerica—URBAN REDEVELOPMENT—Town, Bd. Selectmen, Town Hall, urban redevelopment. $350,000. U. S. Government funds granted for planning. Constr. 1958.

Mass., Boston—SCHOOL—City, School Dpt., 26 Norman St., Boston, plans by Holmez & Edwards, Inc., 126 State St., high school addn., alterations, Dorchester. $400,000. Constr. 1958.

▲ **Mich., Lincoln Park**—SCHOOLS, etc.—Bd. Educ., 1300 Champlain St., voted bonds June 27, high school, swimming pool, elementary school, $6,800,000. CD 5/20.

Mich., Muskegon—SCHOOL—Bd. Educ., Laketon School Dist., Muskegon, Junior High School. $700,000.

(Continued on page 119)

Mr. Evan Evans (right) and Mr. Clarence Dankel (left)

"Our 30-in steel pipe is going strong after 25 years"

(Report of an interview with Evan Evans, president, and Clarence Dankel, general manager, Panther Valley Water Company, Lansford, Pa. In 1932 this company constructed a 30-in.-ID steel pipe line nearly 10 miles from Still Creek dam to Coaldale. The pipe was fabricated in 30-ft lengths by Bethlehem Steel Company. It was lined with 3/32-in.-thick Bitumastic enamel, and is thought to have been the country's first large steel water main to be enamel-lined centrifugally. Engineers were Gannett, Seelye & Fleming, now Gannett, Fleming, Corddry & Carpenter, Inc., Harrisburg, Pa.)

Q. Mr. Evans, is the Still Creek line in service today?

A. Yes, it's been used continuously since 1932, carrying about 15,000,000 g.p.d.

Q. How about the flow capacity?

A. The average "C" as determined by our flow tests in 1933 and in 1940 was about 145. I'd say that the flow capacity is just about as good as ever today. There has been no damage to the tar enamel lining as far as I know.

Q. Has the pipe ever failed in any way?

A. No, and it's quite amazing. During the flood caused by hurricane Connie in 1955 the cover was completely swept away from about 1000 ft of the pipe. In many places the pipe spanned 50 or 60 ft without any support whatsoever. Yet there wasn't even the trace of a failure. What's more, the line runs right through our worst areas of subsidence due to mine cave-ins. Still no trouble with the pipe.

Q. What kind of soil is the pipe laid in?

A. Just about the worst you could find. It's "hot" soil; lots of coal banks and the like. But it hasn't damaged the pipe.

Q. Then you're satisfied with performance of the line?

A. Definitely. We're well pleased in every respect.

Would you like to have more information about Bethlehem Tar-Enameled Steel Pipe? Please contact the Bethlehem sales office most convenient to you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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BETHLEHEM STEEL

THE TOWN AND COUNTRY PLAZA SHOPPING CENTER, Pensacola, Fla., used 1,825 tons of structural steel, including 448 tons of AmBridge Steel Joists —all fabricated and erected by American Bridge.

AMBRIDGE STEEL JOISTS

save time and money at Pensacola Shopping Center

THE TOWN AND COUNTRY PLAZA SHOPPING CENTER, Pensacola, Florida, is a fine example of the way AmBridge Steel Joists can work for both architect and builder. Available in two types—Standard and Long Span— AmBridge Steel Joists are so versatile they can be used to support any type of modern roof, ceiling, or floor . . . giving architects unusual latitude in design. Here, in the Plaza, they hold aloft cantilever balconies and canopies with rigid safety, add eye-appeal to the finished buildings, and protect shoppers from Florida sun and rain.

Builders know that time saved is money saved. Strong, light, easy-to-handle AmBridge Steel Joists are installed quickly, cut the time required to put your building under cover. When used for floor construction they allow other inside trades to begin work sooner. To simplify your outfitting tasks, the modern underslung, open-web design of AmBridge Steel Joists permits unobstructed passage of pipes, ducts and conduits in any direction, affords maximum head room for ceilings.

And AmBridge Steel Joists are modern right down to the way they are fabricated and resistance welded. Production line output gives you better, more uniform stock, in quicker time for delivery. AmBridge Steel Joists can help you save time and cut costs on your next project. Get in touch with our nearest contracting office . . . NOW . . . for detailed information.

Shopping Center Developer: B. THORPE & CO., PITTSBURGH, PA.
General Contractor: BAKEWELL CONSTRUCTION CO., PITTSBURGH, PA.
Architects: BRANDON SMITH, PITTSBURGH, PA., F. T. EDSON, PENSACOLA, FLA.
Designing Engineer: J. W. LAUFFER, PITTSBURGH, PA.

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UNITED STATES STEEL

(Continued from page 116)

Mich., Novi—SCHOOL—Bd. Educ., Novi Community School Dist., voted bonds June 27, elementary school. $825,000.

▲ Mich., Southfield—SCHOOLS—Bd. Educ., Southfield Public Schools, Mark W. Rebine, secy., 24675 Lashser Rd., plans by Dolgner & Rollason, 13827 Fenkell St., Detroit, Zone 27, high school addn., $1,000,000; John Grace Elementary School and East Southfield Elementry School addns., $350,000. CD 6/11. Plans by O'Dell, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, Elementary-Junior High School. $1,000,000.

Mich., Utica—SCHOOL—Bd. Educ., Utica Community Schools, plans by Smith & Smith, 2908 North Woodward St., Royal Oak, West Utica Junior High School. $400,000.

Mo., Aurora—HOSPITAL—City, City Hall, bond election July 30, hospital. $450,000.

▲ N. J., Atlantic City—CONVENTION HALL—City Comn., convention hall modernization. $2,000,000. George Swinton, city engr.

N. J., Franklin Twp. (Middlebush P. O.)—SCHOOL—Bd. Educ. plans by Micklewright & Mountford, E. Stuyvesant Ave. school, Franklin Blvd., $650,000. Target for completion Sept. 1, 1956.

▲ N. J., Frenchtown—SCHOOL—Delaware Valley Regional High School plans by Micklewright & Mountford, E. Stuyvesant Ave., Trenton, high school, on Fisher tract, near Everittown. $1,600,000. CD 6/21/56.

▲ N. J., Mays Landing—SCHOOL—Greater Egg Harbor Regional High School Bd. plans by Ballinger Co., 1625 Race St., Phila., Pa., Regional High School, facilities, 110 acre site. $1,700,000.

N. J., Whippany—SCHOOL—Bd. Educ., Twp. of Hanover, school for Malapardis Road near Countrywood Estates, $349,000. Memorial School addn. $400,000. Hanover Twp.

N. Y., Brooklyn—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., New York 7, Proj. F-14, firehouse for Engine 226 and Rescue 2, $358,000. Constr. after 1962.

N. Y., Brooklyn—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., New York 7, Proj. F-18, firehouse for Engine 209, Ladder 102 and Battalion Chief, $430,000. Constr. after 1962.

N. Y., Brooklyn—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., New York 7, Proj. F-38, firehouse for Engine 215, Ladder 106 and Battalion Chief, vicinity Milton, Kent Sts., between Franklin and Eckfort Sts., Constr. after 1962.

N. Y., Brooklyn—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., New York 7, Proj. F-57, firehouse for Engine 237, Ladder 108 and Battalion Chief, $419,750. Constr. after 1962.

N. Y., Brooklyn—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., New York 7, Proj. F-107, firehouse for Engine 234, Spare Ladder and Battalion Chief $430,000. Constr. after 1962.

N. Y., Brooklyn—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., New York 7, Proj. F-118, firehouse for Engine 207, Ladder 110 and Battalion Chief, $465,000. Constr. after 1962.

N. Y., New York—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., Zone 7, Proj. F-117, firehouse for Engine 15 and Spare Ladder, $345,000.

N. Y., New York—FIREHOUSE—Dpt. P. Wks., Municipal Bldg., Zone 7, Proj. F-119, firehouse for Engine 24 and Spare Ladder, $361,000. Constr. after 1962.

O., Ashtabula—SCHOOL—Harbor Bd. Educ., Lake and Walnut Sts., bond election Nov. 5, elementary school, $670,000. Fulton, DelaMotte & Assoc., 6014 Euclid Ave., Cleveland, Zone 3, archts. CD 11/25/49.

O., Elyria—SCHOOL—Ridgeville Bd. Educ., Alfred Gerhart pres., bond election Nov. 5, school, $575,000. CD 5/20.

O., Greenfield—SCHOOL, etc.—Greenfield Bd. Educ., bond election Nov. 5, primary school and field house, physical educ. addn. to existing school, $775,000.

O., Wickliffe—SCHOOL—Bd. Educ., 2221 Rockefeller Ave., defeated bonds June 25, school addns. $965,000. Outcalt, Guenther & Assoc., 13124 Shaker Square, Cleveland, Zone 20, archts. CD 3/28.

Okla., Pryor—AUDITORIUM—City, City Hall, plans by Bailey & Bozalis, Colcord Bldg., Oklahoma City, municipal auditorium. $350,000.

Okla., Pryor—COURT HOUSE—Mayes Co., Pryor, plans by Bailey & Bozalis, Colcord Bldg., Oklahoma City, remodel Mayes County Court House. $430,000.

▲ Pa., Lima—SCHOOL—Central Delaware Co. Joint School Dist., constr. Junior High School. $1,000,000.

Pa., Levittown—SCHOOL—Middletown Twp School Bd., elementary school. $750,000.

S. C., Charleston—FACULTY HOUSING—The Citadel, Gen. Mark W. Clark (pres.) Charleston, faculty housing, $500,000.

▲ Tenn., Memphis—MENTAL HOSPITAL—State Bldg. Comn., Nashville, constr. mental hospital, intensive treatment center, $3,000,000.

▲ Tex., Brownsville — MOTEL — Cameron Co., c/o Comrs. Court, Courthouse, resort motel, La Blanca Park on Padre Island. $1,110,000.

Tex., McAllen—HOSPITAL—City, Bill Schupp, mgr., City Hall, plans by R. Newell Waters, Clark & Tomlinson, 468 Palmero St., Corpus Christi and 1st. National Bank Bldg., Weslaco, hospital. $800,000-$1,500,000.

Tex., Premont—SCHOOL—Premont Independent School Dist. plans by Herbert E. Kellner, 406 Austin Hy., San Antonio, high school (only). $400,000. R. C. Rippstein, 2305 Transit Tower, San Antonio, consult. engr. CD 6/25.

▲ Tex., San Marcos—CLASSROOMS, etc.—Southwest Texas State Teachers College, officer-classrooms, $400,000; agricultural group, $375,000; industrial arts, $350,000; library-science, $350,000.

▲ Utah, Farmington—SCHOOL—Davis County School Dist., Samuel Morgan, supt., voted bonds June 25, school bldg. program. $4,000,000. CD 6/9/54.

Wash., Kirkland—SCHOOL—School Bd., Kirkland high school addn. $570,000.

Wash., Marysville—SCHOOL—School Dist. 25, Marysville, Junior-Senior High School addn., Marysville, $594,745.

Wash., Onalaska—SCHOOL—School Dist. 300 plans by McCoy & Bradbury, Vancouver, elementary school, $360,000. CD 8/13.

▲ Wash., Seattle—SCHOOL—School Dist. No. 1, 815 4 Ave. N., plans by T. Damm, 516 James St., Ballard High School addn., $1,185,297; plans by J. W. Maloney, Central Bldg., Zone 4, Franklin High School addn., $1,530,852. Bids to be called this year. CD 11/9.

▲ Wis., Hales Corners—SCHOOL—Joint School Dist. 5, 4983 S. Rock River Dr., Milwaukee, Zone 19, plans by Schroeder & Spransy, 1750 W. Silver Spring Dr., Milwaukee, high school. $1,250,000. Boswell & Villa, 1414 N. 12 St., Milwaukee, consult. engrs.

COMMERCIAL BUILDINGS

▲ Calif., Burlingame—MOTOR HOTEL—Owner, c/o Stanley Gates, 308 El Camino Real, 195 unit motor hotel and parking facilities for approx. 350 cars, on Old Bayshore near Broadway Overpass. $3,000,000.

▲ Calif., Healdsburg—ACADEMY—Seventh Day Adventist Conference of No. Calif., c/o President, 1811 11th St., Oakland, religious boarding academy on 350 acre site (former Digger Bend Ranch), $1,000,000.

Conn., Danbury—BANK—Danbury Building & Loan Assoc., 2 West St., plans by Andrew F. Euston, 153 Court St., New Haven, bank bldg., Main St. $350,000.

Ind., Fort Wayne—SCHOOL—Catholic Diocese plans by Bradley & Bradley, 1115 S. Clinton, 2 story classroom wings, South Catholic High School, Paulding Rd. between S. Calhoun St. and U.S. 27. Bids to be asked August 1957.

▲ Iowa, Ottumwa—HOSPITAL—St. Joseph Hospital, Ottumwa, hospital addn. $1,200,000.

Mass., South Weymouth—SCHOOL—St. Francis of Xavier, c/o Chancery Office, 1 Lake St., Brighton, plans by Edward J. Shields Assoc., Inc., 1245 Hancock St., Quincy, Parochial School and Hall. $400,000. Constr. 1958.

Mo., Springfield—NURSES HOME, etc.—Burge Hospital, 440 S. Market St., plans by A. C. Esterly, 400 McDaniel Bldg., nurses home and hospital wing, $750,000. CD 4/19.

N. J., Oradell—HOSPITAL—Dr. L. Melvin Elting, 447 Queen Ave., Teaneck and Drs. J. M. Sklar & Irwin Rhine, 1033 River Rd. N., Milford, plans by James E. Bell, 207 E. 32nd St., New York, N. Y., River Dell Hospital, Kinderkamack and Soldier Hill Rds. $500,000.

▲ N. J., Woodbridge—SHOPPING CENTER—Woodbridge Plaza, Inc., Chas. Lifland, pres., c/o J. I. Kislak, 32 Journal Sq., Jersey City, plans by Harold Glucksman, 850 Broad St., Newark, shopping center, Route 440. $3,500,000.

N. Y., Brooklyn—OUT-PATIENT—Maimonides Hospital of Brooklyn, 4802 10th Ave., plans by Skidmore, Owings & Merrill, 425 Park Ave., New York 22, 4 story out-patient bldg., 4802 10th Ave. $790,000.

N. Y., Brooklyn—TELEPHONE EXCHANGE—New York Telephone Co., 101 Willoughby St., plans by Voorhees, Walker, Smith & Smith, 101 Park Ave., New York, Zone 17, altering 5 story commercial telephone exchange, 7701-7713 3rd Ave. $500,000.

▲ N. Y., Buffalo—HOSPITAL—Deaconess Hospital, 536 Riley St., plans by James Meadows & Howard, 250 Delaware Ave., 6 story hospital, Humboldt Parkway. $4,000,000. CD 9/19.

Pa., Hamburg—ACADEMY—Eastern Penna Conference, Seventh Day Adventists, Hamburg, Adventist Academy addns., alterations. $550,000.

▲ Pa., Morrisville—APARTMENT—Louis H. Cohan Co., Inc., 140 W. State St., Trenton, N. J., apartment $2,000,000.

Pa., St. Davids—WOMENS DORMITORY—Eastern Baptist College, St. Davids, plans by William H. Lee, Penn Center Plaza, Phila., women's dormitory. $344,000.

Tex., Austin—OFFICE—V & W Corp., c/o Harold A. Berry, archt., 425 S. Field St., Dallas, 3 story, brick, steel concrete office (foundation designed for 9 story), $375,000.

Tex., Beaumont—BOWLING CENTER—Gateway Bowling Alley, c/o Fred T. Magee, c/o Gateway Center, 28 lane bowling center, $375,000.

▲ Tex., Corpus Christi—OFFICE, etc.—San Jacinto Title Co., 1905 S. Staples St., 10 story office, Staples, Baldwin Blvd., Louisiana Parkway. $2,275,000-$3,000,000; heliport (on sun deck), outdoor swimming pool and sun-bathing arangement, $125,000; 500-auto parking garage, $200,000.

▲ Tex., Dallas—HOSPITAL—Methodist Hospital of Dallas, 301 W. Colorado St., plans by Geo. L. Dahl & Assocs., 2101 N. St. Paul, 2 wing addn. to St. Pauls

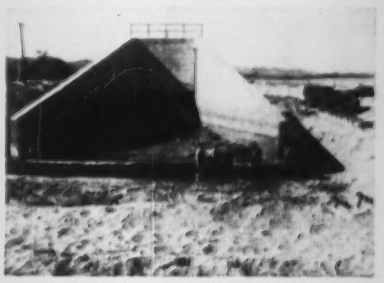
HOW TO HANDLE
WET JOBS

BRIDGE PIER
COFFERDAM

Winona, Minn.

Contractor: James Construction Co.

BEFORE DEWATERING. Earth cofferdam is shown around damaged and tilted center pier of bridge which had been washed away by Mississippi Spring floods. Griffin Wellpoint system (see photo, right) has 640-ft perimeter.



WITHIN 12 HRS, the 2 pumps have brought water below subgrade, wresting 5000 gal per min from the very coarse sand and gravel.

IN INSTALLATION, the wellpoints on this job had to be driven the last few feet, through gravel. Fortunately, Griffin's is the only point specifically designed for driving as well as jetting. Contractor was thus enabled to "breeze through" what might otherwise have proved a big headache.

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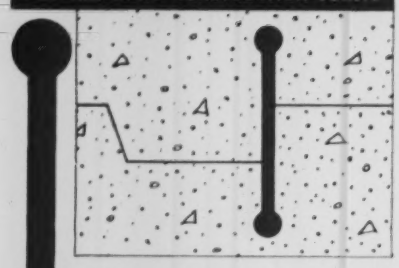

Williams Efficiency Waterstops are made from Natural Rubber Stock, and designed for maximum effectiveness in any type of cast-in-place construction joint. They will bend around corners—will not tear from shear action. Tensile Test: 3990 lbs.; Elongation Test: 650%. Available in rolls up to 80 feet in length. Field splicing is simple. Williams Waterstops can also be furnished in Neoprene for industrial uses where resistance to oil and other injurious wastes is desirable. These highly effective Waterstops are now in use in hundreds of industrial plants, commercial and public buildings throughout the country.

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Hydraulic PULLERS
Perfected for
PRESTRESSING
CONCRETE

TEMPLETON, KENLY & CO. Broadview, Illinois
2553 Gardner Road

Hospital. $2,800,000. Bids in 1957. CD 12/30/54, under St. Paul's Hospital, as owner.

▲ **Tex., Dallas**—HOSPITAL—Methodist Hospital of Dallas, 301 W. Colorado St., plans by George L. Dahl & Assocs., 2101 No. St. Paul St., 500 bed hospital, in new site. $10,000,000. Constr. 1958. CD 12/30/54.

▲ **Tex., Dallas**—SHOPPING CENTER—Trammell Crow, 425 S. Field St., plans by Harold A. Berry, 4626 Ross Ave., Zone 4, shopping center known as Preston Royal Village, northwest corner Preston Rd. and Royal Lane, $2,000,000; hard paved auto parking center and area paving for shopping center, $85,000. Constr. in spring, 1958. CD 7/3.

Tex., Farmers Branch—DWELLINGS—General Housing Co., 2665 Richland St., Dallas, 24 dwellings, $421,000; 21 dwellings, $386,500, in Valwood Park.

Tex., Farmers Branch—DWELLINGS—Laughlin & Silver, 7206 Heverford St., Dallas, 23 dwellings, $368,500; 26 dwellings, $379,725, in Valwood Park.

▲ **Tex., Farmers Branch**—DWELLINGS—H. D. Lewis & Angus Wynne, Jr., 401 Wynnewood Village, Dallas, 30 dwellings, $431,400; 27 dwellings, $385,115; 26 dwellings, $377,000; 23 dwellings, $369,500, all in Valwood Village.

Tex., Farmers Branch—DWELLINGS—Storey Homes, Inc., Gibraltar Life Bldg., 26 dwellings, Valwood Addn. $384,125.

Tex., Houston—HOSPITAL—Medical Arts Bldg., 1215 Walker St., plans by Grayson, Gill, 1913 San Jacinto, Dallas, converting 3 floors existing bldg. into a 90 room private hospital. $500,000. CD 7/9.

▲ **Tex., Houston**—SHOPPING CENTER—Meyerland Plaza Shopping Center, c/o 4703 Jason St., 105,000 sq. ft. shopping center addn., Beechnut and Post Oak Rds. $1,000,000.

▲ **Wash., Ellensburg**—PHYSICAL EDUCATION—Central Washington College of Educ. Plans by R. H. Burkhard, 2120 S.W. 152 St., Seattle, physical education bldg., $1,300,000. Constr. might start next year. CD 9/28/56.

▲ **Wash., Spokane**—HOME—Methodist Retirement Home, c/o F. Jenkins, N4008 Hawthorne St., home for retired persons. $1,000,000.

Wyo., Lander—HOSPITAL—Bishop Randall Hospital, plans by Goodrich & Wilking, archts.-consult. engrs., 722 E. Yellowstone, Casper, constr. hospital for 45 beds. $450,000. CD 1/29.

INDUSTRIAL BUILDINGS

Calif., Chico—PLANT—Chico Bean Growers Co-operative c/o president, 436 W. 11th St., bean processing plant at Bell and Meridan Rd. $250,000.

Calif., Tracy—PLANT—Milton F. Johnson, c/o American Sand & Gravel, Hopper Rd., Modesto, ready-mix plant, 5 acre site. $100,000.

▲ **Colo., Denver**—LABORATORY—National Jewish Hospital, 2800 E. Colfax St., plans by Eugene D. Sternberg, consult. engr.-archt., 2365 E. 3rd St., 7 story, 50 x 100 ft. research laboratory. $1,000,000.

Conn., Milford—INDUSTRIAL—William Carlson, 61 Shell St., Fort Trumbull Beach, Milford, 2 story, colonial type industrial bldg., Green's End Place, Milford Green. $250,000.

Conn., Wallingford—PLANT—Goldfeder Silverware Co., Inc., 1000 Grand St., Brooklyn, N. Y., 13,000 sq. ft. plant, Pent Rd. $130,000.

Ill., Belleville—PLANT—Gundlach Machine Co., 226 Centreville Ave., repairs to plant and facilities damaged by recent floods. $250,000.

Ind., Lagrange—WAREHOUSE—Sealed Power Corp., Muskegon, Mich., 1 story, 70,000 sq. ft. distr. center warehouse. Work to start this summer.

Iowa, Davenport—WAREHOUSE—Westinghouse Electric Supply Co., R. F. Baumgartner, mgr., 402 E. 4th St., 200,000 sq. ft. warehouse. $200,000. (Correction—owner). CD 4/15.

Iowa, Humboldt—WAREHOUSE SHOP, etc.—Corn Belt Power Co-operative Humboldt, warehouse shop bldg. with offices $355,000, Stanley Eng. Co., Muscatine, consult. engr. CD 12/1/48, under Unclassified.

Kan., Topeka—SHOPS, etc.—International Business Machine Corp. (Topeka Branch) 601 Topeka St., storage shops and office. $200,000.

Mass., Dorchester—WAREHOUSE, etc.—General Foods Corp., 250 North St., White Plains, N. Y., warehouse and office addns., alterations, 16 River St. $100,000. Cleverdon, Varney & Pike, 120 Tremont St., Boston, consult. engrs. Constr. 1957.

Mo., St. Louis—GARAGE, etc.—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12th Blvd. and Market St., Zone 3, garage and service bldg., at St. Louis Water Division's Pipe Yards on Kings Hy., near Northrup Ave. $125,000.

N. Y., Brooklyn—FACTORY—Samo Realty Corp., 80 Livingston St., Zone 2, plans by Saul Goldsmith, 80 Livingston St., Zone 2, 1 story factory, 140-62 Provost St. $150,000.

Pa., Ardmore—GARAGE—Northside Holding Co., 5 E. Montgomery Ave., Cynwyd, garage. $100,000.

Tex., Houston—SHOP SERVICE, etc.—Davis Plymouth, Inc., c/o Ira Jack Castles, consult. engr., 20 N. Sampson St., plans by Herman Kelling, 3373 Westheimer St., auto. sales, display, shop service in Cambridge Place Addn. $135,000.

Tex., Houston—PLANT—Herb J. Hawthorne, Inc., 49th St. at North Main, plans by Rob. W. Maurice, 3222 Mercer St., plant expansion (mfg. geophysical and mining bits) $150,000.

▲ **Tex., Houston**—PLANT—Metal Goods Corp., 711 Milby St., plant, 12½ acre site on Ricks Rd. $1,000,000.

▲ **Tex., Houston**—PLANT—Southern Pacific Ry. Co., L. A. Loggins, ch. engr., 913 Franklin St., crosstie-treatment plant on 35 acre tract at 4910 Liberty St. $1,000,000. Taco Corp., Spartanburg, S. C., consult. engrs. CD 7/2.

Tex., Houston—WAREHOUSE—Stockham Valves & Fittings, 1118 Delano St., plans by Brown & Root, archt.-consult. engr., 4100 Clinton Dr., warehouse. $200,000.

Tex., Houston—FOUNDRY—Texas Electrical Steel Casting Co., 3601 Gillespie St., foundry expansion. $200,000.

▲ **Tex., Houston**—MILL UNIT—Texas Rolling Mills, Inc., c/o R. I. Sample, 3806 Olympia St., & Gen. Offices, 4117 Gulf Freeway, Phase I, mill unit to produce electric welded pipe, $1,500,000; Phase II, doubling capacity phase no. 1 mill, (a new mill plant will be constr. here), $1,500,000; providing railway tracks and dock facilities $175,000.

Tex., Morgan Creek—PLANT—Texas Electric Service Co., Morgan Creek, power plant addn. $500,000.

Tex., San Antonio—SHOP—Goodwill Industries, 3822 Pleasanton Rd., plans by Phillip Lloyd Shoup, 122 W. Olmos Dr., 26,022 sq. ft. shop expansion proj. $150,000. Dennis Feigenspan, 6936 San Pedro St., and Paul G. Silber & Co., 1919½ Cincinnati St., consult. engrs.

▲ **Tex., Texas City**—PLANT—Monsanto Chemical Co., Texas City, acetylene plant expansion, $3,000,000; expansion of Styrene Monomer Production Plant $6,000,000. CD 4/13/50.

Vt., Essex Junction—BUILDING—Cynosure, Inc., c/o Greater Burlington Industrial Corp., 150 Cherry St., Burlington, plans by Benjamin Stein, 215 College St., Burlington, 32,000 sq. ft. building addn. $400,000. International Business Machines Corp., 217 South Union St., Burlington, lessee.

▲ **Wash., Vancouver**—PLANT—Carborundum Co., Niagara Falls, N. Y., furnace addn. and bldg. constr. at silicon carbide plant, $1,000,000.

▲ **Wyo., Casper**—PLANT—Platte Chemical Corp., Thomas R. Harrison, pres., Darling Bldg., Salt Lake City, Utah, 225 ton a day sulphuric acid plant. $2,500,000.

UNCLASSIFIED

Calif., San Francisco—TRACK REPLACEMENT—City and San Francisco Co. P. Utilities Comn., City Hall, bond election Nov. 11, track replacement. $750,000. CD 11/13/47, under Streets and Roads.

Iowa—RURAL DISTRIBUTION LINES—Wright County Electric Cooperative, Clarion, distr. lines and sys. imprvs., Wright Co. $316,000, Brown Eng. Co., 322 K P Bldg., Des Moines, consult. engrs. CD 10/22/54.

Mo., St. Louis—COMMUNITY CENTER—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12th St., and Market St., Zone 3, plans by Russell, Mullgardt, Schwartz & Vanhoefen, Chemical Bldg., 721 Olive St., Zone 1, community center in Sherman Park, on Kings Hy., north of Easton Ave., incl. indoor and outdoor swimming pools. $810,000. R. L. Eason & Assoc., 5423 Southwest Ave., Zone 10, structural engrs. Harry F. Wilson Assoc., Inc., 4908 Delmar Blvd., Zone 8, mechanical and electrical engr. CD 5/24.

N. Y., New York—SUB-STATION—Consolidated Edison Co., 4 Irving Place, New York 3, electric sub-station, west side of West Broadway, between Leonard and Franklin Sts. $500,000.

▲ **N. Y., New York**—SHIPPING TERMINAL—Dpt. Marine & Aviation, Pier 8, North River, New York, Zone 4, plans by Charles J. Irwin, 1029 E. 29 St., Brooklyn, Zone 10, railroad shipping terminal, foot of Christopher St., North River, Proj. D 257. $1,000,000. To go ahead in 1957. CD 6/6.

Pa., Phila—SQUASH COURTS—University of Pa., 209 S. 36th St., plans by Paul Monaghan, 1528 Walnut St., squash courts. $350,000.

South Carolina—RURAL DISTRIBUTION LINES—Marion Electric Co-operative, Marion, 60 mi. electric distr. line and sys. imprvs., Marion Co. $180,000.

▲ **Tex., Houston**—WHARF—Port Comn., c/o Houston-Harris Co., Ship Channel Navigation Dist., 1519 Capital Ave., wharf constr., for Wharves 18, 19 and 20, $4,500,000. Lockwood, Andrews, & Newman, Box 13332, consult. engr. for Wharves 18 and 19 and Francis J. Niven & Assocs., and J. G. McKenzie, 2124 Welsh St., consult. engrs., for Wharf 20. Bids about Aug. 1. CD 5/8.

† **Tex., San Antonio**—AIR CONDITIONING SYSTEM—General Services Admin., General Services Bldg., Wash. 25, D. C., air-conditioning sys. for U. S. Postoffice and Courthouse. $616,000. Karbach & Engel, c/o Maverick Bldg., consult. engrs.

Wash., Tacoma—PARK—Metropolitan Park Dist., City Hall, roadway imprvs. in Point Defiance Park, $207,800. Stewart & Lamberger, 608 S. Oxford St., consult. engrs. CD 2/23/56.

Wisconsin—RURAL DISTRIBUTION LINE—Chippewa Valley Electric Cooperative, Cornell, 13 mi. electric distr. line and sys. imprvs., Chippewa Co. $371,000.

Wis., Stevens Point—SWIMMING POOL—City, City Hall, 50x110 ft. concrete swimming pool. $100,000.

Bids—Low Bids—Contracts—Second Edition

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
July 30 Massachusetts August 2 Vermont

HEAVY CONSTRUCTION—LB & CA

▲ **Myrose Constr. Corp.**, 299 Main St., East Hartford, Conn. CA $1,318,700. Proj. MR-64, moderate rental HOUSING, NEW BRITAIN, CONN. New Britain Housing Authy, 34 Marimac Rd., New Britain, Conn. Bids June 28. CD 7/9, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
July 30 Maryland, New Jersey

▲ **N. Y., White Plains**—BA 8/14—Westchester Co., James C. Harding, Comr., County Office Bldg., Contr. 878 structures and equip.; Contr. 878P, plumbing work; Contr. 878H, heating and ventilating; Contr. 878E, electrical work for sewage treatment plant, Yonkers Sewer Proj., in city of Yonkers. Plans deposit $100. CD 8/24/54.

BUILDINGS—BA

▲ **N. J., Trenton**—HOSPITAL—BA About 10/15—Mercer Hospital, 446 Bellvue Ave., 8 story, brick, cinder block, steel hospital addn. $3,000,000. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., consult. engrs. Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., archts. CD 7/18/56.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,
Schacht Steel Constr., Inc., 1841 Broadway, New York, N. Y., CA $4,399,378, 62 span steel superstructure on high level Fuhrmann Blvd. Hamburg Turnpike (Route 5) Viaduct over Union Ship Canal incl. 1.13 mi. extending from Ridge Rd. in Lackawanna northward to Tifft St. in Buffalo, Erie Co. Bids June 6. CD 6/7, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
McCloskey & Co., 1620 W. Thompson St., Phila., Pa., CA $5,486,649. 2 level hy. reinf.-con. bridge decks of reinforced Class A concrete, variable in width over Schuylkill River and Conversion part of Schulykill Expressway to limited access, Philadelphia Co. Bids June 21. CD 6/25, under LB.

▲ **Inter-County Constr. Corp.**, Hyattsville, Md. LB $465,656 (9 bidders) Part A; LB $1,312,400 (3 bidders) Part B; sewer lines, Contract No. 1, CAMP HILL, PA. Lower Allen Twp. Sewer Auth., 1993 Hummel Ave., Camp Hill, Pa. Bids July 9. CD 6/7;
Berlanti Constr. Corp., 15 Oakland Ave., Harrison, N. Y. LB $1,170,592, (4 bidders) Part C, sewer lines (Camp Hill, Pa.);
Moseman Constr. Corp., 2311 N. Front St., Harrisburg, Pa. LB $336,380 (6 bidders) general construction, Contr. No. 2, sewage treatment plant (Camp Hill, Pa.).

▲† **Ivey Bros. Constr. Co.**, 3252 Peachtree Rd. N. E., Atlanta 5, Ga., CA $1,495,422. 4 airmen's dormitories ENG-26-019-56-570, DOVER, DEL. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. CD 5/16, under LB.

BUILDINGS—LB & CA

▲ **Le Chase Constr. Co.**, 29 Saratoga Ave., Rochester, N. Y., LB $2,006,158, JUNIOR-SENIOR HIGH SCHOOL, CHILI, N. Y. Central School Dist., Towns of Gates and Chili, Chili, N. Y. Benedict Ade, 840 University Ave., Rochester, N. Y., archt.

▲ **Anthony Leotta**, c/o Leonard Feinnen, archt., 320 Lincoln Ave., Hasbrouck Heights, N. J., Owner Builds, $3,600,000, 200 HOUSES, New Brunswick Ave. EAST BRUNSWICK, N. J.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 2 Tennessee
STREETS AND ROADS
August 2 Tennessee

▲ **La., New Orleans** — TERMINAL BLDG. — BA 8/7 — City, George Bosworth, purch agt., Civic Center, New Orleans, 2 story; with 3rd floor portion, concrete steel terminal bldg., and West Pier, at Moisant International Airport, $5,000,000-$6,000,000. Plans deposit $200. Goldstein, Parham & Labouisse and Herbert A. Benson, George J. Reihl, 811 American Bank Bldg., engrs.-archts. CD 10/19/54.

BUILDINGS—SLC

▲ **Ky., Central City** — GENERATION STATION — Kentucky Utilities Co., 120 Limestone St., Lexington, soon lets contract, sub-structure for addition to generation station. Total est. $15,443,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., engrs. CD 1/23.

HEAVY CONSTRUCTION—LB & CA

▲ **FLORIDA**—State Rd. Dpt., Tallahassee,
Hubbard Constr. Co., Box 7217, Orlando, Fla., CA $1,664,945. b. conc. surf. course with binder course, storm sewers, small drainage structures etc. 6.425 mi. south city limits of Edgewater to Columbia St. in New Smyrna, S. P. Job 7901-176, SR 5 (U. S. 1), Volusia Co. Bids May 16, awarded July 12. CD 5/23, under LB.

▲ **FLORIDA**—State Rd. Dpt., Tallahassee,
Duval Eng. & Contr. Co., Box 1588, Jacksonville, Fla., CA $1,432,222. 1,407 ft. overpass structure, 21 steel beam spans and one steel girder span all having two 50 ft. clear roadways divided by 4 ft. wide, concrete median strip, concrete abutments founded on concrete piles; concrete piers founded on steel or concrete piles 0.266 mi. between point west of Hendricks Ave. and Colroado Ave. in South Jacksonville, FA Proj. I-IN-003 (7) LLO, Job 7202-281, SR 9 and 10 (U. S. 1) Duval Co. Bids May 16, awarded July 11. CD 5/23, under LB.

▲ **LOUISIANA**—State Dpt. Hys., R. B. Richardson, dir., Highway Office Bldg., Baton Rouge, Bids opened 6/26,
La.—**W. R. Aldrich & Co.**, 2506 Lorraine, Baton Rouge, La., LB $2,622,864, c. concrete pavt. and other work in connection therewith 5.863 mi. Pearl River-Mississippi State Line Hy. SP No. 740-00-09, FA Proj. No. I-530 (1) St. Tammany Parish.
La.—**Continental Constr. Inc.**, Box 407, Baton Rouge, La., LB $360,200, (2 bidders) aggreg. type soil, cement base, bit. surf. treat., etc. 7.706 mi. Polkville-Amsandville Hy. S. R. La. 686; SP No. 850-02-09, St. Martin Parish;
La.—**Coastal Cont. Co.**, Perkins Rd., Baton Rouge, La., LB $592,155. (2 bidders), widen existing pavt., bit. hot mix surf. 11.949 mi. Monroe Columbia Hy. Rte. SP No. 15-08-06 FAP No. F-14, Quachita Parish;
La.—**G. E. Steed**, Springhill, La. LB $105,096 (2 bidders), aggreg. type soil, cement base course, bit. surf. treat. 6.35 mi. Rte. La. 505, Tannehill-Gainsville Hy. S. P. No. 321-01-06, Winn Parish;

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Dur-O-waL Div., Cedar Rapids Block Co., CEDAR RAPIDS, IA. Dur-O-waL Prod., Inc., Box 628, SYRACUSE, N.Y. Dur-O-waL of Ill., 119 N. River St., AURORA, ILL. Dur-O-waL Products of Ala., Inc., Box 5446, BIRMINGHAM, ALA. Dur-O-waL Prod., Inc., 4500 E. Lombard St., BALTIMORE, MD. Dur-O-waL Div., Frontier Mfg. Co., Box 49, PHOENIX, ARIZ. Dur-O-waL, Inc., 165 Utah St., TOLEDO, OHIO

La.—T. L. James & Co., Inc., Ruston, La., LB $852,315 (2 bidders), widen existing concrete pavt., bit. hot mix. surf. 16.086 mi. Dowington-Lacombe Hy. S. R. 190, SP Nos. 13-11-04 & 13-12-15, FAP No. F-76, St. Tammany Parish;

La.—J. B. Talley Co., St. Martinville, La., LB $505,834 (2 bidders) c. conc., etc. 4 mi. Upper Coteau Hy., Rte. LA 660, SP No. 855-07-04, Terrebonne Parish;

La.—Barnhill Bros., Many, La., LB $192,622 (2 bidders), aggreg. type or soil cement base course, bit. surf., 4.399 mi. Columbus-Negrett Hy. La. 476. SP Nos. 150-01-04 & 150-02-02, Sabine Parish;

La.—Austin Contg. Co., 1000 Singleton Blvd., Dallas, Tex., LB $306,954 (2 bidders), aggreg. type or soil cement base, bit. surf. treat, etc. 7.844 mi. Cypremort-Point Hy. Rte. La. 319, SP No. 239-01-26, St. Mary Parish. CD 6/18.

BUILDINGS—LB & CA

▲ H. W. Ivey Constr. Co., 3133 Maple Dr. N. E., Atlanta, Ga., CA $3,069,610. CHEMISTRY BLDG. and ANIMAL SCIENCE BLDG., ATHENS, GA. University System of Georgia, 244 Washington St. S. W., Atlanta, Ga. Bids June 2, awarded July 8. CD 7/12, under LB.

▲ Charles Constr. Corp., 3510 4 St. N., St. Petersburg, Fla., CA Est. $2,000,000. 3 story, 120x300 ft., Redington Reef Co-operative APARTMENTS and swimming pool, Bath Club Estates, ST. PETERSBURG, FLA. Oscar Gower & Assoc., c/o C. Dale Dykema, archt. 16901 Gulf Blvd., St. Petersburg, Fla.

▲ Whittenberg Constr. Co., 2214 S. Floyd St., Louisville, Ky., LB $1,387,000 (6 bidders) brick rein.-con., high and elementary SCHOOLS, BARDSTOWN, KY., Bardstown Bd. Educ., 5th and Beal St., Bardstown, Ky. Bids July 8. CD 6/27.

▲ Bardstown Bd. Educ., 5th and Beal St., Bardstown, Ky., rejected bids July 8, brick, rein.-con., HIGH and ELEMENTARY SCHOOLS, BARDSTOWN, KY., LB $1,387,000. Will re-advertise. CD 7/17, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 6 Wisconsin
STREETS AND ROADS
Angust 1 Illinois August 6 Ohio, Wisconsin

▲ ILLINOIS—BA 8/1—Illinois State Toll Hy. Comn., 20. N. Wacker Dr., Chicago, Zone 6,
South Beloit, N-1C grading, draining, paving 1.57 mi. pre-cast concrete bridges, near here. $1,500,000. Rochester, Goodell & Harry A. Baike, Salem, engrs. CD 4/26, under LB.

▲ Illinois—BA 8/15—Wabash R.R. Co., Wm. J. Hedley, ch. engr., 1420 Railway Exchange Bldg., St. Louis 1, Mo., constr. superstructure of 1,620 ft. railroad bridge consisting of river and approach piers, including vertical (310 ft.) lift section on Illinois River, incl. lift span machinery, etc. at Valley City, $3,000,000. Plans deposit $25, Sverdrup & Parcel, Inc., 915 Olive St., St. Louis 1, Mo., consult. engr. CD 11/30.

BUILDINGS—BA

▲ Wis., Milwaukee—SCHOOL—BA 8/22—School Bd., 1111 N. 10 St., Zone 3, John Muir Junior High School. $2,000,000. Plans deposit $125. Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, archts. CD 4/8.

▲ Ill., Elgin—HOTEL—Bids Asked—Fin & Feather Inn., Elgin, 124 room hotel. $2,500,000. Sidney H. Morris, 134 No. LaSalle, Chicago, Zone 2, archt.

HEAVY CONSTRUCTION—LB & CA

▲ OHIO—State Hy. Dpt., Columbus, Zone 15,
O.—Codell Constr. Co., 125 S. Main St., Winchester, Ky., CA $4,315,943. Proj. 190, Type T-71, structures, 2.119 mi. SR 7 (0.00-0-50), (33,83-34-10) FU 431 (1). Wellsville Columbiana and Jefferson Counties.

O.—The DeSalvo Constr. Co. Inc., 3701 Red Bank Rd., Cincinnati, O., CA $2,150,000. Type T-71, structures 4.649 mi. SR 69, Sections 0.08, 8.94, S-283 (3) Greene and Montgomery Counties;

O.—Frank Mashuda Companies, Associated, 5556 W. Roosevelt Dr., Milwaukee, Wis., CA $4,173,519. Type T-71, structures 7.554 mi. Section 19.42, I-529 (12), USR 40, Licking Co.;

O.—George W. Lathrop & Sons Inc., 1510 Mountcalm Ave., Toledo, O., CA $4,022,165. Type T-71, structures 0.652 mi. U.S.R. 24A, Section 5.53; C.R. Nos. 170 and 227, I-1052 (14) S-400 (2) Parts No. 1 and 2, Lucas Co.;

O.—Harry Miller Excavating Co. Inc., Box 54, Suffield, O., CA $5,868,585, Type T-71, structures 7.291 mi. and 6.792 mi. U.S.R. 224, Section 17.66, 0.00, F-458 (14) Parts No. 1 and 2, Medina and Summit Counties, Grand total $20,530,212. Bids June 25. CD 6/27, under LB.

▲ OHIO — State Dpt. Hys., Columbus 15, bids opened 7/9.

O.—Frysinger Constr. Co., 3770 N. High St., Columbus 4, O., LB $549,229 est. $561,300 (7 bidders) c.conc. 2.126 mi. US Rte. 62 in Morgan Twp., Knox Co. and in Washington Twp. and Village of Utica, Licking Co., also grade separation with Baltimore and Ohio R.R. consisting of cont. concrete slab bridge with concrete substructure over Baltimore & Ohio R.R. and Harris Street, Br. No. LIC-62-1893, Knox and Licking Counties;

O.—A. J. Ronyak, Inc., Box 277, Burton, O., LB $94,118 est. $95,100 (2 bidders) b.conc. resurf. 4.777 mi. County Rd. No. 6 in Leroy and Madison Twps., Lake Co.;

O.—Union Bridge Co., P. O. Box 62, Mt. Liberty, O., LB $67,667, est. $82,600 (5 bidders), paving in part with b. conc. surf. on crushed aggreg. base, widening and resurf. in part with b.conc. 0.297 mi. State Rte. No. 204 in Green Camp Twp., also cont. concrete slab bridge with capped pile substructure over Little Saints River, Marion Co.;

O.—The Murray Constr. Co., 316 W. Emmitt Ave., Waverly, O., LB $164,376, est. $185,900 (5 bidders), paving in part with b.conc. on crushed aggreg. base, widening and resurf. in part b.conc. 1.055 mi. State Rte. 335 in Beaver and Marion Twps., also cont. concrete slab bridge with concrete substructure over Beaver Creek cont. concrete slab bridge with capped pile substructure over Swift Creek, Pike Co.;

O.—Boyd & Cook Co., 634 Third Nat'l Bldg., Dayton, O., LB $134,866 est. $162,790, (2 bidders) Type T-30, T-35, T-35, 27.46 mi., Clinton, Green and Warren Counties;

O.—Fenton Constr. Co., P. O. Box 310, Ashland, O., LB $74,191 est. $74,330 (2 bidders) Type T-30, B-35, T-35, 9.66 mi. Darke Co.;

O.—Ohio Road Paving Co., 30 E. Broad St., Columbus, O., LB $75,397 est. $72,880, Type T-30 and T-35, 9.01 mi., Sandusky and Seneca Counties;

O.—Ohio Asphalt Paving Corp., 823 Prospect St., Portsmouth, O., LB $76,160 est. $78,550, Type T-30, B-35, T-35, 7.44 mi., Scioto Co.;

O.—Maxon Constr. Co., Inc., 2600 Far Hills Ave., Dayton, O., LB $2,542,588 est. $2,670,000 (3 bidders) c.conc. 1.293 mi. U. S. Rte. 25 in City of Dayton, also cont. steel beam bridge with concrete deck and concrete substructure over Ramp N-17; steel girder bridge with concrete deck and concrete substructure over Keowee St., cont. steel beam bridge with concrete deck and concrete substructure over Ramps N-17 and M-15 and under Westbound State Rte. No. 4; cont. steel beam bridge with concrete deck and concrete substructure over Ramps N-17 and N-15 and Northbound Expressway, Montgomery Co.;

O.—Walter Jones Constr. Co., R. No. 1, Wooster, O., LB $95,973, est. $118,120 (4 bidders), Type T-30 and T-32, 26.37 mi., Ashland and Wayne Counties;

O.—L. P. Cavett Co., 511 Shepard Ave., Lockland, O. LB $105,795 est. $113,350 (2 bidders), Type T-30 and T-32, 22.58 mi., Pike and Ross Counties;

O.—George A. Trombley & Son, 2415 Byrne Rd., Toledo 14, O. LB $134,997, est. $168,400 (5 bidders), resurf. in part with b. conc., paving in part with b. conc. surf. on crushed aggreg. base 0.744 mi. State Rte. No. 281 in Flatrock Twp., Henry Co. and in Milton, Portage and Montgomery Twps., Wood Co., also cont. concrete slab bridge with capped pile piers and abutments over Eckert Ditch; cont. concrete slab bridge with capped pile piers and abutments over Kniseley Ditch, Henry and Wood Counties;

O.—Connolly Constr. Co., Inc., Delaware Rd., Marysville, O. LB $145,634, est. $155,400 (5 bidders) resurf. in part with b. conc. and grading, draining and paving in part with b. conc. surf. on crushed aggreg. 1.551 mi. State Rte. No. 118 in Allen Twp., Darke Co. and Granville Twp., Mercer Co., Darke and Mercer Counties;

O.—E. K. Bridge Constr. Co., 2416 Bryne Rd., Toledo, O. LB $2,665,050, est. $3,398,500 (12 bidders), Combined Parts 1 and 2, SR 384-(0.10-3.76), 0.00, 9.97; USR 6-3.78, F-1018 (3), F-1018 (4), (Parts Nos. 1 and 2), Type T-71 and Structures, 17.099 mi. Henry and Williams Counties;

O.—Launder & Son, Inc., Sta. E, Box 6, Toledo, O. LB $1,854,989 est. $2,035,100 (4 bidders), Part 1 above job, Henry and Williams Counties;

O.—Schoen Asphalt Paving, Inc., 310 S. Westwood Ave., Toledo, O. LB $1,229,394 est. $1,363,400 (3 bidders) Part 2 above job, Henry and Williams Counties. CD 6/21.

▲ ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., State Fair Grounds, Springfield. Bids opened 6/21,
Paschen Contractors, Inc., 2739 Elston Ave., Chicago 47, Ill. CA $1,391,997. 2.19 mi. storm sewer in Congress Street Expressway, Cook Co. Awarded July 15. CD 6/27, under LB.

▲ ILLINOIS—State Toll Hy. Comn., 20 N. Wacker Dr., Chicago,
Ryan Bros. Co., Janesville, Wis. and Hedges Constr. Co., 4621 W. Flournoy St., Chicago, Ill., CA $4,995,745, Contr. T-6-A, 4.22 mi. from Cermak Rd. to connection with E.-W. Toll Road and Congress Expressway in Chicago, Tecon Engineers, 314 Wilkinson St., Frankfort, Ky., engrs. Awarded July 11. CD 7/1.

▲ ILLINOIS—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago,
Kenny Constr. Co., 3220 Oakton St., Skokie, Ill. Contg. & Material Co., 1235 Dodge, Evanston, Ill., and Louis Garavaglia, 24240 Mound St., Centerline, Mich., CA $11,297,050, Contr. T-5-AB, 5.36 mi. 6 lane from 71 St. and Wolf Road to 31 St. Awarded July 11. CD 6/12.

▲ ILLINOIS—Illinois Toll Hy. Comn., 20 N. Wacker Dr., Chicago,
Orr Constr. Co., 27 19 Pl., Chicago Heights, Ill., CA $6,099,763, Contr. T-3-A, grading, drainage, paving, appurtenances, erecting precast and structural steel bridges 3.73 mi. beginning S. of 95 St., N. W. to 79 St. Bids June 13, awarded June 28, CD 6/19, under LB.

▲ ILLINOIS—Illinois Toll Hy. Comn., 20 N. Wacker Dr., Chicago,
Standard Paving Co., 30 N. La Salle St., Chicago, Ill. Peter J. Crowley Co., Box 144, Maywood, Ill., and A. W. Jackson Co., 300 W. Washington St., Chicago, Ill., CA $6,985,265, Contr. T-1A, grading, drainage, paving seeding erecting precast and structural steel bridges 3.38 mi. beginning Grand Trunk and Western R.R., extending W. to E. of Ashland Av. Bids June 13, awarded June 28. CD 6/19, under LB.

▲ ILLINOIS—Illinois Toll Hy. Comn., 20 N. Wacker Dr., Chicago,
Peter Kiewit Sons Co., Condon Cunningham Co., 4229 Lafayette Ave., Omaha, Neb. and Paschen Contr., Inc., 2739 Elston Ave., Chicago, Ill., CA $8,320,514. Contr. T-1C, grading, drainage, paving, seeding, culverts, bridges 5 mi. beginning at Wood Blvd. (US 54) westerly to Chicago, Rock Island & Pacific R.R. Bids June 13, awarded June 28. CD 6/19, under LB.

▲ WISCONSIN—State Hy. Comn., Madison,
Kramp Constr. Co., 2765 S. 27th St., Milwaukee, Wis., CA $1,448,345, c. conc. 2.364 mi. S. T. Hy. 100 and City Street, S. T. H. 100 (W. Expressway to W. Burleigh St.) and West North Avenue (S. T. H. 100 to Menomonee River Parkway), City of Wauwatosa, Projs. U 058-1 (11) and US 0821 (6), Contr. 1, Milwaukee Co. Bids June 4, CD 6/10, under LB.

▲ MICHIGAN—State, John C. Mackie, hy comr., Stevens T. Mason Bldg., Lansing,
Lewis & Frisinger Co., 1110 Harpst St., Ann Arbor, Mich. CA $1,427,876. 5.234 mi. dual concrete pavt. on M-37 and 1.883 mi. base wid'n. and b. conc. on M-37 from North 3 mile to Alpine Church Rd., M 41033 C1-R F 41033 C2-R (F 57 6), Kent Co. Bids June 19. CD 7/8, under LB.

BUILDINGS—LB & CA

▲ Koppers Co., Koppers Bldg., Pittsburgh, Pa., CA $10,000,000 design and construct rebuilding two coke oven batteries and furnishing certain chemical recovery and coke handling equip. Cleveland Works, CLEVELAND, O. Republic Steel Corp., 3175 Independence Ave., Cleveland, O.

▲ Georgian Builders, Reynoldsburg, O. Owner Builds. $12,000,000. 900 HOMES on 200-acres REYNOLDSBURG, O.

▲† T. C. Bateson Constr. Co., 6800 Dalton Dr., Dallas, Tex., CA $13,290,000, 12 story, 478,000 sq. ft. HOSPITAL BLDG. Spec. No. 5576, GREAT LAKES, ILL., Ninth Naval Dist., Great Lakes Training Center, Great Lakes, Ill. Bids June 20. CD 6/28, under LB.

▲ J. H. Findorff & Sons, 601 W. Wilson St., Madison, Wis., CA $1,547,550, general contract CHADBOURNE HALL, MADISON, WIS. University of Wis. Bldg. Corp., Roger C. Kirchhoff, state archt. CD 6/26.

▲ Spence Bros., 417 McCoskry St., Saginaw, Mich., CA $2,043,000, general contract SENIOR HIGH SCHOOL, PONTIAC, MICH. City, Monroe M. Osmun, secy. Pontiac School Dist., 40 Patterson St., Pontiac, Mich. Bids June 25. CD 7/8, under LB;
Broedell P. & H. Co., 20229 Mack St., Grosse Pt., Mich., CA $592,200, mechanical contract, high school, (Pontiac, Mich.)

▲ Clifford A. Ross Co., 551 Argyle St., Birmingham, Mich., CA Est. $1,500,000, 34 HOMES, Howard Smallwood, Northover Farms, 18 Mile Rd., East Long Lake, TROY, MICH., Wolcott Real Estate agt., 708 North Woodward, Royal Oak, Mich.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 1 Kansas August 2 Minnesota

BUILDINGS—BA

▲† Colo., Denver—POSTAL ANNEX—BA 10/8—U. S. Post Office Dpt., General Services Admin., 19 and F St. N.W., Wash., D. C., 4 story working area and 6 story office tower, 528,000 sq. ft. postal annex bldg., incl. full bsmnt. under entire building. $7,000,000. T. H. Buell & Co., 730 14 St., archts.-engrs. CD 9/29/55.

HEAVY CONSTRUCTION—LB & CA

▲† Flenniken Constr. Co., Box 6857, Dallas, Tex., CA $1,789,464, airfield pavement overlay, DALLAS, TEX. Officer in Charge Contr., Eighth Naval Dist., Naval Air Station Bldg. 16, New Orleans (Algiers,) La. Bids June 25, CD 7/11/51.

BUILDINGS—LB & CA

▲ D. C. Bass & Sons Co., 314-316 Bass Bldg., Enid, Okla., CA $2,635,378, (4 bidders) general contract three 9 story, 28 x 126 ft. DORMITORIES and one story 98 x 120 ft. CAFETERIA, to connect with dormitories by enclosed passageway at Kentucky and Maryland Aves., COLUMBIA, MO. Curators University of Missouri, Dale O. Bowling, bus. mgr., 116 Jesse Hall, Columbia Mo., Bids June 18. CD 7/1, under LB;
J. Louis Crum, Boone Bldg., Columbia, Md., CA $1,135,418, plumbing and heating and air-conditioning (3 bidders), for dormitories and cafeteria at University of Missouri, (Columbia, Mo.)

▲ Kansas City Housing Auth., Joseph Brady, dir., 1220 Independence Ave., Kansas City, Mo., cancelled bids to have been opened June 12, 250 low rent HOUSING units, Pennway Plaza Proj., KANSAS CITY, MO. Est. $3,571,575. CD 6/3.

▲ **Tellepsen Constr. Co.**, 1710 Telephone Rd., Houston, Tex., CA **$1,475,000**, 50,000 kw Turbine Unit No. 1, FREEPORT, TEX. Dow Chemical Co., Freeport, Tex. CD 3/12/56.

▲ **Houston Lighting & Power Co.**, 1016 Walker St., Houston, Tex., Separate Contract, **$7,775,000**, 165,000 kw. unit electric power generating unit, Smithers Lake Plant, 9 mi. south of Sugarland, Fort Bend Co., RICHMOND-ROSENBERG, TEX. CD 2/21/56.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 1 Nevada August 7, 8 California

▲ **Calif., Los Angeles**—BA 8/2—Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Storm Drain Bond Issue Proj. 12, Manhattan Beach Blvd. Storm Drain, Redondo Beach, El Segundo, Hawthorne, Los Angeles, $3,369,400. CD 11/7/52.

HEAVY CONSTRUCTION—LB & CA

▲ **NEVADA**—State Opt. Hys., Carson City, —
Isbell Constr. Co., S. Virginia Rd., Reno, Nev. CA **$2,631,957**, portion of State Hy. System on U. S. 40 from 9½ mi. to 15¾ mi. east of Sparks, Proj. I-IN-001-1 (14), Washoe Co. Bids July 11.

▲ **California Steel Products Co.**, Barrett Ave. and A St., Richmond, Calif., CA **$1,992,330**, 9 intake gates for Rocky Reach hydro project, Wenatchee, WASHINGTON, Chelan County Public Utility Dist., 27 N. Wenatchee Ave., Wenatchee, Wash. CD 4/24 under LB.

▲† **Wismer & Becker and P. S. Lord**, 1731 "S" St., Sacramento, Calif., CA **$1,786,768**, est. $1,582,482, Green Springs power plant, switchyard and penstock, Rogue River Proj. Spec. DC 4905, OREGON. Bureau Reclamation, Dpt. Interior, Camp White, Ore. Bids June 18, awarded June 28. CD 6/24, under LB.

† **West Coast Steel Works**, 5609 N. E. 77 Ave., Portland, Ore., LB **$208,100** est. $277,905 (10 bidders) bridge on relocated Rigdon Rd., Hills Creek Reservoir, Civeng 35-026-57-266, OREGON U. S. Eng., Pittock Block, Portland, Ore. Bids June 28. CD 6/12.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,
Calif.—**Transocean Engineering Corp.**, 7807 Russell City Rd., Hayward, Calif., CA **$942,791**, grading, surfacing 7.8 mi., incl. bridge on Sign Rtes. 88 and 49 between Lancha Plana Rd. and 0.5 mi. east of Martell, Amador Co. CD 7/15 under LB.
Calif.—**Fredrickson & Watson Constr. Co.**, 873 81st Ave., Oakland, Calif., CA **$1,742,222**, grading and surf. 1.4 mi. freeway with frontage roads and connections and rein.-con. bridge on U. S. 101 between 0.5 mi. north of California Park overhead and Greenbrae, Marin Co. Bids June 26, awarded July 10. CD 6/4.

BUILDINGS—LB & CA

▲ **Gale S. Roberts**, 338 W. 11 Ave., Eugene, Ore. LB **$1,495,381**. (8 bidders) general, mechanical and electrical contracts COURT HOUSE, EUGENE, ORE. Lane Co., Court House, Eugene, Ore. Bids July 11.

▲ **Tumblin Constr. Co.**, 2901 "H" St., Bakersfield, Calif. CA **$1,694,000**. 4 story, bsmnt., 87,000 sq. ft. JAIL, incl. sheriff's facilities, offices, garage, etc., BAKERSFIELD, CALIF. Kern Co., c/o Clerk, Courthouse, Bakersfield, Calif., Bids June 4. CD 6/7, under LB.

▲ **Fred S. Macomber**, 8818 Melrose Ave., Los Angeles, Calif., LB **$4,420,000** (4 bidders) C. L. McLane HIGH SCHOOL, Cedar and Clinton Sts., (also swimming pool, stadium development) FRESNO, CALIF. Fresno City Unified School Dist., c/o Supt., 2348 Mariposa St., Fresno, Calif., bids July 10. CD 6/18.

▲ **Howard J. White, Inc.**, 870 Charleston Rd., Palo Alto, Calif. CA **$1,245,101**. concrete, structural steel LEWIS THERMAN JUNIOR HIGH SCHOOL, Atascadero Rd., PALO ALTO, CALIF. Palo Alto Unified School Dist., 543 Channing Ave., Palo Alto, Calif. Bids July 2, awarded July 10. CD 7/11, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
July 31 Ontario

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldg., Victoria,
R & L Constr. Co., Ltd., 1450 W. Broadway, Vancouver, B. C., LB **$1,477,860** (9 bidders) Proj. 881, 16.46 mi. Pouce Coupe-Alberta Boundary section of Peace River Highway. F. T. Brown, c/o owner, engr.

▲ **NEW BRUNSWICK**—Dpt. P. Wks., Parliament Bldgs., Fredericton,
N. B.—**Central Constr. Co. Ltd.**, Fredericton, N. B., CA **$268,000**. (8 bidders) grav. 2.2 mi. Beechwood-Upper Kent, Trans-Canada Hy.;
N. B.—**Victoria Contractors Ltd.**, Andover, N. B., LB **$394,000** (4 bidders) 2.8 mi. Upper Kent-Muniac, Trans-Canada Hy.;
N. B.—**Devon Constr. Co. Ltd.**, 106 St. Mary's St., Fredericton, N. B., CA **$371,000** (5 bidders) grav. 2.9 mi. Muniac-Kilbourn, Trans-Canada Hy.;
N. B.—**Wasson Constr. Co.**, Minto, N. B., CA **$1,187,000** (6 bidders) grav. 1.8 mi. Kelly Turn-Hanwell Rd., Trans-Canada Hy.;
N. B.—**Diamond Constr. Co.**, 480 Union St., Fredericton, N. B., CA **$1,331,000** (5 bidders) grav. 3.4 mi. Hanwell Rd.-Forest Hill, Trans-Canada Hy.;
N. B.—**Crown Constr. Co.**, Havelock, N. B., CA **$889,000** (5 bidders), grav. 7.1 mi. Anderson Crossing-Eat, Trans-Canada Hy.;
N. B.—**Dexter Constr. Ltd.**, 880 Devor Rd., Lancaster, (St. John), N. B., CA **$1,709,000** (6 bidders) grav. 6.5 mi. Berry-Mills-West, Trans-Canada Hy. Grand total $6,149,000. CD 2/4/44.

▲ **NEWFOUNDLAND**—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.
Concrete Products (Newfoundland), Mt. Pearl St., St. John's, Newfoundland, LB **$1,635,250**. grading, culverts and traffic gravel about Mile 0 to Mile 12, Trans-Canada Hy. Terra Nova National Park Charlottetown. Bids July 4. CD 6/11.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, Ont.—**Canadian Bridge Co., Ltd.**, P. O. Box 157, Walkerville, Ont., LB **$1,389,918**. Contr. 57-114, structural steel for new bridges, Trans-Canada Hy. 17, bridge over White Lake Narrows, about 20 mi. west of White River;
Ont.—**North Shore Constr. Co. Ltd.**, Canada Cement Bldg., Montreal, Que., LB **$528,755** (7 bidders) Contr. 57-53, structure, grading, culverts, gran. base, hot mix paving 1.27 mi. Hy. 401 from west limits of Hy. 29 interchange to North Augusta Rd., incl. Elizabethtown structure 10A at Hy. 29 in Brockville.

▲ **Schwenger Constr. Ltd.**, 1255 Beach Rd., Hamilton, Ont., CA **$1,265,998** (12 bidders) sewage treatment plant exten., incl. grit removal facilities, primary settling tanks, alteration tanks, final settling tanks, chlorination facilities, digestion tanks and administration and blower bldg., GUELPH, ONT. City, City Hall, Guelph, Ont. Bids June 28, awarded July 3. CD 5/31.

▲ **E. G. M. Cape & Co.**, 4898 Western Ave., Montreal, Que., CA **$1,450,999**. reconditioning, widening Berth 18, Quebec Harbor, QUEBEC CITY, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Bids June 14, awarded July 5. CD 6/24, under LB.

BUILDINGS—LB & CA

▲ **Walter G. Hunt Co., Ltd.**, 1405 Bishop St., Montreal, Que., CA **$1,500,000**. superstructure and service facilities for DIESEL SHOP, Cote de Liesse Hump Yard, MONTREAL, QUE. Canadian National Ry. Co., W. E. Griffiths, ch. engr., Central Region, Union Station, Toronto, Ont. Bids June 10, awarded July 10. CD 5/31.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† **Denali-McCray Constr. Co.**, Juneau, Alaska, LB **$1,256,560** est. $1,581,795, 2 rock mound breakwaters and dredging to enlarge small-boat basin at Bar Point, Inv. 57-6, Ketchikan, ALASKA, U. S. Eng., Anchorage, Alaska. Bids July 12. CD 6/13.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **VENEZUELA**—Ministry of P. Wks., Caracas,
Venezuela—**Pavimentos Vica, C. A.**, Avenida Principal Urb. Las Merceds, Caracas, Venezuela, LB **$5,094,023**, widening, paving 16.7 mi. section of Trunk Hy. No. 11 near Bejuma in Caraboo State;
Venezuela—**Asfaltos Acero S. A.**, Edificio Polar, Piso 12, Plaza Venezuela, Caracas, Venezuela, LB **$1,760,385** asph. paving two 22 mi. sections of Trunk Hy. No. 3 between Quebrada La Guinea and Palmarejo in State of Falcon and Aulia. CD 5/8/56.

BUILDINGS—LB & CA

▲ **Fish Service & Management Co.**, c/o M & M Bldg., Houston, Tex.; U. S. A. CA **$3,500,000**. Sulphur Extraction PLANT, Isthumsu in Texistepec sector of Tehauntepec, MEXICO. Texas International Sulphur Co., c/o Century Blvd., Houston, Tex., U. S. A.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲† **Firmes Empresa, Inoges**, Spain, LB **$1,353,260**. W-1 site, Spanish Air Base Program, ZARAGOZA, SPAIN. Bureau Yards & Docks, Dpt. Navy, 18 St. and Constitution Ave. N. W., Wash. 25, D. C., U. S. A.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **India**—BA 8/27—Chief Constructional Engineer, Koyna Proj. P. O. Koyne Dist., North Satara Bombay, India, steel lining in head race tunnel surge, take offs and pressure shafts. $3,000,000. Plans deposit $21. CD 7/11/49.

(Proposal Advertisement see pp. 140 to 142)

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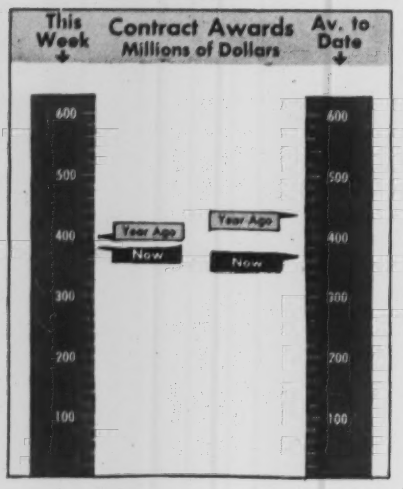
Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 30 wks 1957 millions	Chge '56-'57 %
Federal	$46.2	$1,656.3	+50
State and Municipal	233.8	4,328.5	+14
Total Public	280.0	5,984.8	+22
Total Private	113.6	5,049.8	−39
U. S. Total	$393.6	$11,034.6	−16
By Type of Work			
Waterworks	$4.8	$216.8	+0.5
Sewerage	11.9	334.6	−3
Bridges	23.1	434.0	+21
Highways	143.5	1,832.5	+31
Earthwork, Waterways	10.1	665.4	+43
Buildings:			
Public, Excl. Housg.	57.2	1,339.9	+12
Public Housing	9.9	412.9	+93
Private Housing	45.8	1,789.9	−46
Commercial	23.5	1,040.5	−3
Industrial	38.2	1,945.9	−44
Unclassified	25.6	1,022.2	−7
U. S. Total	$393.6	$11,034.6	−16

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

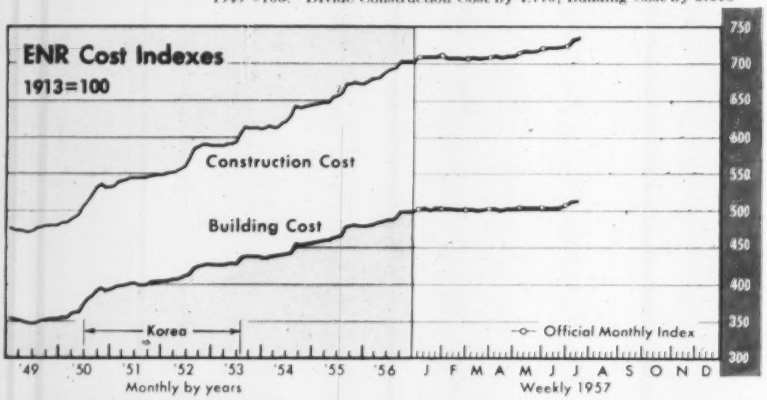
NEW CAPITAL FOR CONSTRUCTION

	Week of July 18	Cum. 29 wks 1957 millions	Chge '56-'57 %
Corporate Securities	$98.5	$3,448.9	+39
State and Municipal:			
All Except Housing	95.3	3,005.3	+10
Housing	...	155.8	+263
Federal Loans	0.8	150.5	+92
Federal Aid	76.2	2,161.2	+102
Total Nonfederal	$270.9	$8,921.9	+39
Federal Appropriations:			
In U. S.	$108.7	$413.8	−63
Outside U. S.	6.0	22.8	+43
Total New Capital	$385.5	$9,358.4	+24

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of July 18 1957	% Change from June 20 1957	% Change from July 19 1956
Construction Cost	737.56	+1.9	+5.9
Building Cost	515.77	+1.9	+5.1

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518



BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	June 30 1957 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$107,014	+0.6	+6.9
By Ownership—			
Private	45,267	+0.2	+5.5
State and Municipal	48,483	+1.2	+9.4
Federal	13,264	−0.7	+2.8
By Type of Work—			
Waterworks	2,287	+0.5	+10.7
Sewerage	3,315	+0.1	+8.9
Bridges	3,101	+1.2	+8.3
Highways	12,999	+1.1	+12.0
Earthwork, Waterways	11,170	+0.04	−0.1
Public Buildings, including Public Housing	19,722	+1.1	+10.6
Industrial Buildings	16,322	−0.6	+1.8
Commercial Buildings, incl. Private Housing	19,457	+0.9	+11.8
Unclassified, Private	9,488*	+0.4	+0.03
Unclassified, Public	9,153	+0.7	+6.0

*Includes private bridges, $88 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1957 June	1957 6-months	Percent Change from '56 June	Year Cum.
	(millions)			
Total U. S. (ENR reported)	$1,586	$10,222	+39.2	−24.8
By Ownership—				
Private	465	4,942	−30.5	−32.8
State and Municipal	1,100	4,776	+146.1	−12.2
Federal	21	504	−8.7	−37.1
By Type of Work—				
Waterworks	27	236	+52.7	+27.6
Sewerage	58	336	+35.1	+36.8
Bridges	55	258	+18.1	−5.1
Highways	330	1,540	+2,866.5	+117.0
Earthwork, Waterways	35	104	+1,013.1	−73.4
Public Buildings, incl. Public Housing	464	2,326	+68.4	−12.1
Industrial Buildings	92	1,738	−59.1	−48.8
Commercial: Mass Housing	144	1,272	−26.8	−32.2
Other Building	186	1,487	+17.3	+6.0
Unclassified, Private*	44	445	+34.3	−34.9
Unclassified, Public	151	480	+108.5	−73.2

*Includes private bridges

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	839	4,897	+1.2	−3.5
By Ownership—				
Private	305	1,863	−21.8	−31.3
State and Municipal	434	2,279	+16.3	+22.7
Federal	100	755	+51.1	+49.2

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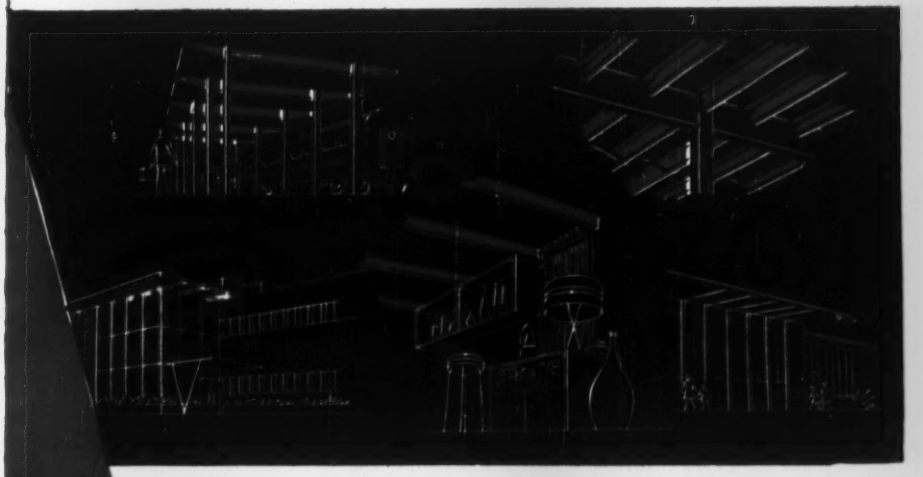

Junior Beam construction offers versatility for uses in residential and industrial construction, schools, hospitals, commercial buildings. Further information can be obtained by writing to the Jones & Laughlin Steel Corporation, Dept. 428, 3 Gateway Center, Pittsburgh 30, Pa.

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Is Industry Creating A New Breed of "Bonus Babies"?

THE STARTING SALARIES offered to this year's June graduates give the impression that industry is creating a new breed of "bonus babies." This is the term baseball fans apply to sturdy youngsters whose talent for hitting and throwing gets them payments of up to $100,000 and other benefits for signing a contract.

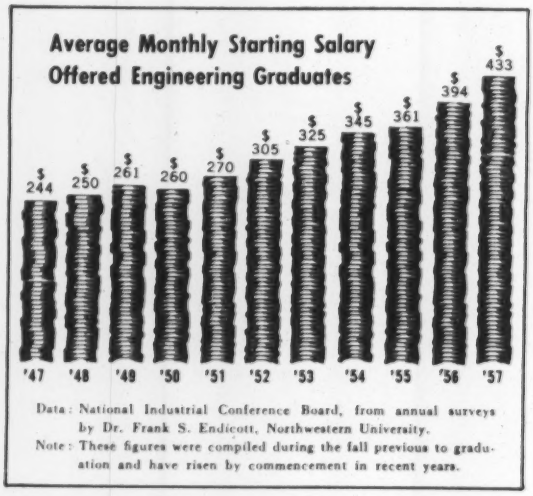
For several years industry's demand for young college graduates, especially in science and engineering, has outrun the number receiving degrees. Competition for these young people has steadily pushed up the starting salaries and has induced many companies to indulge in lavish recruiting programs. This year engineering graduates are being offered well over $400 a month, and even liberal arts graduates find numerous offers at $400 or more. Only ten years ago the salaries offered senior engineering students averaged less than $250 a month.

But any employer who assumes that high starting salaries alone will assure him the number of June graduates he wants is likely to be disappointed. A recent study by the McGraw-Hill Classified Advertising Division shows that most young engineers and scientists going into industry are more interested in their opportunities and in a company's future than they are in the size of their first paycheck.

Money Isn't Everything

In the McGraw-Hill survey, 2,596 recently-hired engineers and scientists employed in 57 companies listed the factors they had considered before accepting a position. The replies of the younger engineers and scientists—those with less than five years' experience — have great significance for employers who want to make any impression in the highly competitive market for college graduates.

- **Potential growth of the company** was listed by more young engineers and scientists than any of the 42 other items on the list as a factor that influenced greatly their decision in accepting a position.
- **Challenging opportunity** was second.
- **The company's prestige and reputation** ranked third.



Data: National Industrial Conference Board, from annual surveys by Dr. Frank S. Endicott, Northwestern University.
Note: These figures were compiled during the fall previous to graduation and have risen by commencement in recent years.

● **Progressive research and development program** was fourth.

● **Starting salary** ranked only **seventh.**

Job and Future Most Important

As a group, the factors relating to the nature of the job, its future and the company's future had by far the greatest influence in attracting young engineers and scientists to their present positions. These include three of the top four attractions—potential growth of the company, a challenging opportunity and a progressive research and development program. Other factors in this group are the company's facilities, quick advancement, self-direction or little supervision, chance to work in a certain field, small size of company and rewards for individual accomplishment.

The second most important group of attractions had to do with prestige. These include the company's prestige and reputation, executive or professional standing and association with leading men in the field. **Third in importance were financial considerations**—starting salary, regular salary increases, financing of relocation, paid vacations and holidays.

A less important group of factors influencing young scientists and engineers were essentially social. Geographic location and educational facilities in vicinity ranked fairly high. But recreational facilities, suburban or country living, pleasant housing and cultural considerations had little appeal.

Ranking lowest, by a good margin, were factors having to do with security—permanent position; health, life and surgical insurance; retirement or pension plan; and sick leave.

It is interesting to note that some of the factors which influenced the **smallest** percentage of young engineers and scientists were country club memberships, use of company car, at-cost or low-cost eating place, travel opportunities abroad and being able to buy the company's products at a discount.

A Lesson For Employers

The lesson of this survey to employers who hope to recruit more young engineers and scientists is clear. High salaries and other financial appeals are important. But, **at a time when high starting salaries are offered in abundance, our young graduates are interested even more in being with companies that will grow and in jobs that will permit them to grow. They are interested in jobs that offer opportunities for advancement, financially and professionally.**

* * *

Were the young scientists and engineers who participated in the survey trying to impress somebody with their motives? If so, it could only have been to impress themselves, for all were asked to return their questionnaires unsigned.

What Factors Influence the Job Selections of Young Engineers and Scientists?

Factors Influencing Decision Greatly	Percent Listing Factor
Potential growth of company	55%
Challenging opportunity	53
Company's prestige, reputation	44
Progressive research and development program	41
Geographic location	37
Permanent position	35
Starting salary	34
Educational facilities in vicinity	33
Regular salary increases	31
Chance to work on specific project, or in certain field	27
Company's facilities (laboratories, technical libraries, etc.)	25
Tuition for graduate study	25

Based on replies by recently-hired engineers and scientists with less than five years' experience to questionnaire distributed by McGraw-Hill Classified Advertising Division.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nation-wide developments. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald C. McGraw
PRESIDENT

McGRAW-HILL PUBLISHING COMPANY, INC.

THE LONGER LOOK:

States, Cities Boost Spending

State and local governments are becoming an increasingly important construction market. Last year they accounted for $10 billion in work put in place—22% of all U.S. construction, almost 80% of all public construction.

This year, with both work put in place and contract awards for state and municipal construction running about 11% ahead of last year's pace, total state and local volume ought to pass $11 billion.

But the mounting capital budgets of states and local government units are forcing them to boost taxes and take on sharply increased debt burdens. Total state-local debt outstanding now exceeds $50 billion, up 50% since the end of 1953.

The tax take of state and local governments is now running over $25 billion yearly, or about 20% more than in 1953. The bulk of this tax revenue comes from property and sales taxes. State-local revenues are helped also by sales totaling some $4 billion by publicly owned utilities and liquor stores.

Highways take the biggest share of state-local construction outlays. Last year they accounted for $4.4 billion of the $10 billion volume of work put in place. Next come schools—with $2.5 billion in 1956—then sewer and water systems—taking $1.3 billion.

In construction, there is a large degree of specialization among the various state and local governments. Last year, for instance, state governments put almost 80% of their construction money into highways and another 10% into educational buildings. Most school construction is financed by school districts.

According to a recent report of the U.S. Bureau of the Census, the heaviest share of cities' construction money—almost a third last year—goes for utilities. Water systems alone took over 20%, or $471 million. Almost as much went for highway construction ($458 million) and sanitation ($436 million).

Other important purposes of city construction outlays included:

	(Million $)
Electric systems	177
Education	169
Housing & community development	95
Recreation	93
Nonhighway transportation	75
Transit systems	62
Health & hospitals	44

State-local construction expenditures have been climbing at a rate of about $1 billion a year. Can state and local finances continue to support annual increases of this size?

Much of the construction, of course, brings in enough revenue to cover its cost. Publicly owned water, electric, gas and transit systems—which alone provide a $1 billion-plus construction market—will bring in total revenues of close to $3 billion this year.

State highway tolls and other highway charges will amount to some $200 million. In many states taxes on motor fuels and motor vehicle licenses is earmarked by law for highway purposes. The total take by states from these sources is running about $4 billion.

Federal aid is another growing source of funds to finance state and local construction. This will provide over $1 billion in construction money this year, mostly for highways.

Schools, sanitation facilities and construction for other local services, however, rest primarily on state-local general tax resources, whether they provide money directly for construction or back up bond issues. Although galloping tax rates in some fast-growing areas have brought occasional defeat of school bond issues at the polls, state-local tax resources generally look strong.

Property taxes now total something over $11 billion, but officially assessed values for general property taxation have been estimated at from $275 to $300 billion. Individual income taxes, which have been covering an increasing share of state budgets, still are not used by a third of the states.

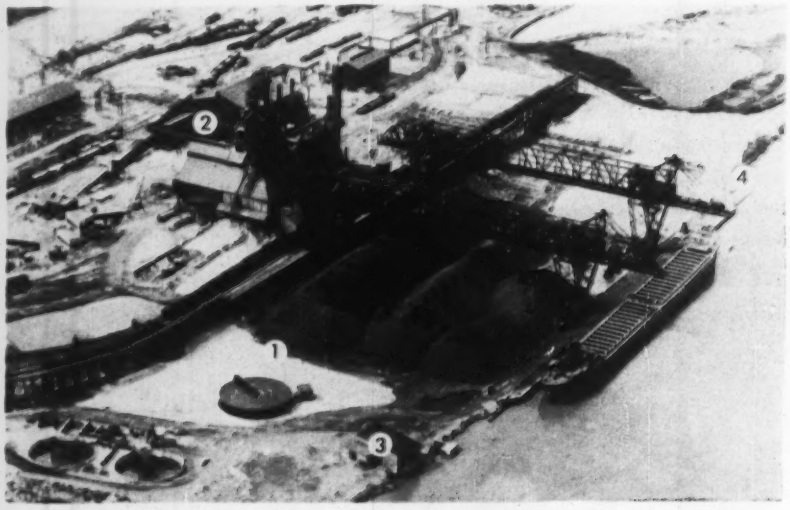
The 50% rise in state-local debt since 1953 has brought the per capita load up to nearly $300. But this pales by comparison with the federal debt of $1,600 per person.

California Bill Approved For Port Modernization

California's Gov. Goodwin J. Knight signed a bill last week providing for a vote on a $50 million bond issue for the modernization of San Francisco's port facilities.

Approved by the recent legislature, the act calls for submission of a bond issue at the November, 1958 general elections. If approved by a majority vote, it will provide funds both for immediate port improvements and a long-range program to meet future growth. The bond would be a general obligation issue to be repaid by port revenues.

(*B&F continued on page 128*)



Steel Expansion to Cost $35 Million

McLouth Steel Corp., Detroit, will add $35 million in new facilities to its Trenton Works. Dravo Corp., Pittsburgh, has the contract. Picture shows location of new facilities including: (1) a Dravo-Lurgi sintering plant; (2) boiler plant expansion; (3) pump house additions; and (4) extension of river dock and ore storage yard.

Urban Renewal Advances

New Haven schedules complete rebuilding of central area at cost of $85 million; Detroit receives grants

Urban renewal and redevelopment programs are making some progress in at least seven major cities—New Haven, Conn.; Detroit, Mich.; New York City; St. Paul, Minn.; Oakland, Calif.; Los Angeles and Philadelphia.

New Haven, Conn., apparently is having signal success with its renewal program. There, Mayor Richard C. Lee has received the backing of a large cross-section of the community through a 500 person committee.

The city's latest project involves an $85 milion redevelopment of the heart of the city. The program already has received approval and financial backing of the federal government.

• **Shopping center location**—The redevelopment will come in the center of the city's main Church Street shopping area bordering historic New Haven Green. The area sprawls over 96 acres, dwarfing the 42 acre Oak Street redevelopment now under way (ENR April 5, 1956, p. 33). Main elements in the latest program are:

- A new 18 story hotel.
- Indoor ramp garage parking for 1,500 cars adjacent to the rebuilt shopping area.
- Outdoor parking for another 1,500 cars in the same area.
- A 200 unit apartment development.
- A 5-story bank building.
- A commercial park.
- A $2 million wholesale produce market fronting on New Haven harbor.

The federal government is contributing $13.2 million in grants and $25.7 million in loans.

• **Other expenditures**—Private sources will invest about $34 million; the City Parking Authority, $7.5 million; the city, $3.5 million in capital improvements, and the state, $2 million for the market.

Mayor Lee estimated the tax income from the area will be increased from its present $400,000 yearly to nearly $1 million. This income, combined with revenues from the parking facilities, will be sufficient to amortize city bond issues as well as those of the Parking Authority, the mayor feels.

The federal loan and grant for the earlier Oak Street program totals $6.6 million. A third project, the Wooster Square plan involving a $14.5 million loan and grant, may be initiated later this year.

• **Detroit progresses**—Detroit has received nearly $14 million in loan and grants for two projects; the government has approved a grant of $3.5 million for a third.

The largest loan and grant (slightly more than $10 million) will be used to acquire and clear the 64-acre Lafayette extension site for resale to private redevelopers.

Federal backing for a second project on the city's East Side, known as the Mack-Concord Conservation Project, also has been received. This totals $3.9 million. This is a pilot program that will serve as a guide for similar conservation projects in 54 other neighborhoods.

In a third move, Detroit's Common Council has formally approved the Corktown redevelopment project after receiving federal approval for a $3.5 million grant.

The project takes in 71 acres of housing scheduled for razing. The land will then be sold for light industry use.

• **City under fire**—New York City is having more than a fair share of difficulties with its redevelopment program under Title I of the national housing act.

One program that drew heavy fire in recent weeks is the Manhattantown project (ENR July 4, p. 24). The $37.5 million proposed housing development was approved and the land, buildings and people, turned over to developers, five years ago. In that time no buildings were started by the sponsors. As a result, development was turned over to another group—Webb and Knapp. Ground is expected to be broken shortly.

The same company also bought out the controling stock interest in University Center, Inc., just prior to the Manhattantown purchase.

And early this week, it appeared that the $228 million Lincoln Square project, the largest proposed redevelopment attempt in the country, has encountered another snag. Planned as an artistic and educational center, the project is bogged down over the real price of the land.

The city administration announced that cultural sponsors agreed to a $6.75 sq ft price and private housing developers to $7 per sq ft.

• **Appraisals required**—But Walter S. Fried, New York City Regional Administrator of the Federal Housing and Home Finance Agency, quickly informed Mayor Robert Wagner that the city must submit at least two re-use appraisals before the federal agency can approve the Lincoln Square resale prices. This may take six weeks, thus setting back the original October demolition target.

Among the major problems encountered in New York City, however, is that of making the private developer remove and relocate the occupants of the buildings to be razed for redevelopment. This practice has contributed to the delays encountered.

But, despite the handicap, some action has occurred. This week, excavation for the Washington Square Southeast project will start. The $75 million apartment colony will consist of three 17 story buildings containing 2,004 units and a 54,000 sq ft shopping area. Completion is scheduled for mid-1960.

• **In other cities**—In St. Paul, Minn., 15 blocks of cleared land near the state capitol and downtown will be sold to private developers Aug. 7. This first offering of 46 acres is part of the 350 acres scheduled for urban renewal in the capitol building area.

Of the land to be sold, 24 acres are earmarked for commercial building, 11 for housing, 11 for schools and parks.

Rehabilitation of a 78 block residential area in Oakland, Calif., started with the demolition of eight structures.

A $150 million to $299 million redevelopment program in Los Angeles came closer to reality with governmental approval of the renewal and redevelopment programs in the city's Bunker Hill and Sawtelle areas (ENR June 27, p. 136).

Philadelphia this year hopes to obtain about $14.5 million in federal funds for its slum clearance and urban renewal.

William L. Rafsky, city development coordinator, said most of the money will be used to clear the six block area of Dock Street for replacement with private housing.

Another $500,000 will be spent in each of five neighborhoods to eliminate conditions tending to destroy existing residential values.

(B & F continued on page 130)

States Work to Get Industry

New Jersey enlists executives as "salesmen"; a city buys industrial land site, but Chicago has buildings

Attracting new industries and holding those already established continue to be among the top problems that are being tackled by state and municipal authorities.

One of the nation's first industrial projects, undertaken by a redevelopment agency, to reach the construction stage is the 44 acre project on Chicago's near South Side.

Known as the West Central Industrial District and bounded by Polk St., Roosevelt Rd., Canal St. and the South Expressway Route, the site already has structures started for 10 light industrial and commercial firms. About 15 others are expected to follow with building activity shortly.

The Chicago Land Clearance Commission, in charge of redevelopment of the area, reports that the total new plant construction so far has an estimated value of $20 million.

• **Removes blight**—The new structures, with their off-street parking and loading facilities, will provide a new face for a worn out area and at the same time will place a much needed light industrial center close to the Loop.

Plants already in the area, according to Phil A. Doyle, executive director of the Land Clearance Commission, will conform to the redevelopment plan drawn for the area by purchasing land and constructing additional facilities in keeping with the overall program.

When completed, the area will provide $340,000 annually in tax revenue as compared to the assessment of only $75,000 now placed on the area.

In Tennessee, the city and county governments of Memphis jointly bought 7,268 acres for $2.4 million which will be developed as an industrial park at an estimated cost of $28 million.

This development is scheduled as an extension of the McKellar Lake industrial program of which the Presidents Island phase was completed last month by the Army Engineers.

• **A big investment**—The latter program represents an $18 million investment with the city-county governments spending about $3 million, the federal government more than $12 million and private industry $2.8 million for plant construction and improvement.

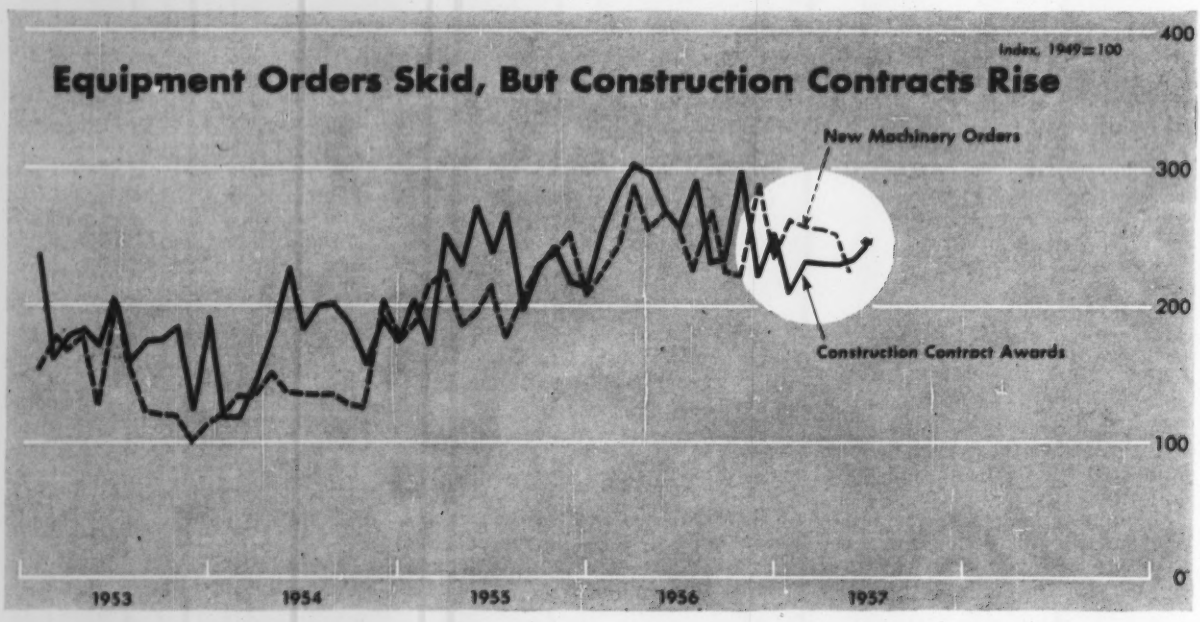
The most recent land purchase by the two local government units is an investment that may not yield a return for several years. Actual construction is still many years away and improvement of the land is contingent on construction of a seven mile levee and a pumping station by the Army Engineers.

Estimated cost of these facilities is $5 million, and the amount must be appropriated by Congress. The House already has passed a $122,000 bill to cover the cost of preparing plans and specifications for the two facilities.

But the costs of engineering, roads and utilities on the land will be shared equally by the city and county governments.

• **State corporation**—One phase of industrial development in Arkansas was conceived by the state's 1957 Legislature. It set up the Arkansas Finance Corp. as one means of financing new industry and helping existing industry expand.

The new corporation recently be-



Equipment Orders Lag for Third Straight Month

New orders for construction machinery fell sharply in May, according to the McGraw-Hill Department of Economics Index (see chart). The May index was 224, based on 1949 = 100, off 16% from a year ago. For the first five months of 1957, the new orders index averages about the same as last year. All of the year-to-year gain scored earlier in the year has been wiped out by three consecutive months in which orders have fallen below the corresponding 1956 month.

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This is another example of a contractor who makes more money with the Davis 210 Back-hoe. It's the exclusive hydraulic rotary boom swing cylinder with three interchangeable mounting points on the frame that let you do it. Of course, other Davis features, such as 7,000 pounds of breakaway, rotary seat for comfortable work and visibility, vertical stabilizers – plus the back-hoe's famous counterpart – the Davis Loader all add their share. It's a fact! No other loader and back-hoe combination can give you so much – on any tractor – at such a reasonable cost. Back-hoe is available truck mounted.

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came a financial reality when 91 leaders in state business invested $1,000 each in the corporation, an investment that will not pay dividends as they are commonly known.

The corporation will be capitalized at $1 million, sell $10 million in bonds and use the entire amount to make loans to local industrial corporations.

The first $100,000 of non-dividend common stock already bought or subscribed is now in hand and the remaining $900,000 will come from non-dividend preferred stock which business leaders hope to sell to Arkansas utilities.

The state will be permitted to buy the first $5 million of the corporation's bonds and half of any bonds sold above that, for a total maximum investment of $7.5 million.

New Jersey's Governor Robert Meyner also aims at increasing the industrial wealth of that state.

One phase of the program, an informal one, but a plan that could prove productive was the enlisting of the state's financial, commercial and industrial executives as "salesmen."

The governor met with the executives recently and all promised cooperation in selling the state as a good place to locate business and industry. As those at the session were men who travel extensively across the country, each will have the opportunity of getting the point across to many of the nation's top executives.

Two Firms Merge

Engineers to specialize in planning of marinas

Charles A. Chaney of Rockville, Md., consulting engineer in the field of marina development, has merged his firm, C. A. Chaney & Associates, with Frederic R. Harris, Inc., of New York City. Operating as a Harris division, the Chaney organization will specialize in marina design.

The Harris organization, headed by Edward J. Quirin, specializes in port development and the design of shipyards, wharves and piers.

The two companies have a large volume of work on hand and according to a spokesman for the Harris company, there is a vast potential in marina design and construction.

• **Rapid growth**—From a handful of anchorage facilities prior to World War II, marinas of all types today number more than 10,000. According to boating authorities, however, the existing facilities do not meet the demand.

Marinas range in type from the old wood docks having a gasoline pump and a bait shack to today's plush anchorages costing as much as $10 million. Now in the planning stage is a $14 million marina for San Francisco Bay's north end.

The new division will have its headquarters in New York City with other offices in Washington, D. C., Philadelphia, New Orleans and Caracas, Venezuela.

• **Association consultant**—Mr. Chaney, is a consultant to the National Association of Engine and Boat Manufacturerers.

He is the author of several technical books on marina construction and planning published by the association.

Construction Markets

Boston: An-on-the-Spot Report

Boston is a city of old traditions —and new construction.

The state as a whole shares both of the city's characteristics. For example, manufacturers in Massachusetts are planning to spend some $288 million this year on new plant and equipment. This is $2 million more than the high 1956 figure; much of this construction entails expansion of existing facilities.

But, new projects also are coming down the pike. Construction of a $20 million commercial and industrial project in Boston's South End (the New York Streets area of 28 acres) will get under way in October. This is a Martin Cerel-Perini redevelopment project.

Radio Corporation of America will build a $4 million research laboratory in Burlington with a frontage that is close to express Route 128 and the Middlesex Turnpike. RCA's latest project is another substantial contribution to the fast-growing electronics industry in the Bay State and comes just two years after the opening of the large RCA electronics laboratory in Waltham.

The utility field also is active. Boston Edison, for example, is engaged in the greatest expansion program in its 81 year history. It has earmarked $38 million for new equipment and construction. The utility is well along on its fourth generating plant at Everett.

Rising costs which have been felt throughout the industry show up quickly in the utility field. The Yankee Atomic Electric Co. is a good illustration of how far and how fast costs have risen. In 1955, when it planned a power plant at Rowe, Mass., estimated cost of the plant was $34.5 million. Now, as construction gets under way, costs for the same plant are estimated at $50 million.

Progress of the Rowe atomic power plant will be watched closely throughout New England, where other such plants are in the proposed stage. One of the participants in the Rowe cooperative atomic power plant project, New England Electric System, soon plans to build one of its own.

Massachusetts is sparking construction in other fields, too. To some observers, it now seems that there are almost daily announcements of new construction projects—large ones—either planned or actually getting under way. Some are noteworthy because of size, others because of other unusual features. An example of the latter is a 100 room motel to be built by residents of Dedham, Needham and other nearby cities at the junction of Route 128 and Route 1. The residents themselves are putting up the financing, a development that is believed to be unique in this field. Ground for this particular project will be broken in August.

Of particular interest to Bostonians is the start of borings for the much-publicized $100 million Prudential Insurance Co. Center in the Back Bay (ENR Jan. 31, p. 75).

This project will include a 50 story Prudential regional administration building, a $7 million city-built civic auditorium that will seat 6,000 people; commercial buildings, apartment buildings, a deluxe motel and a large hotel.

Ground for the Prudential Center is expected to be broken next spring.

The famous Boston Public Library, near the Prudential Center site, is due for its first major expansion. It will be doubled in size by an $8.5 million project that will start in 1959. Part of the financing, $2.5 million, will come from the Josiah H. Benton building fund of the library; the remaining $6 million will be financed by a city bond issue.

PILE-PUSHER PLUS

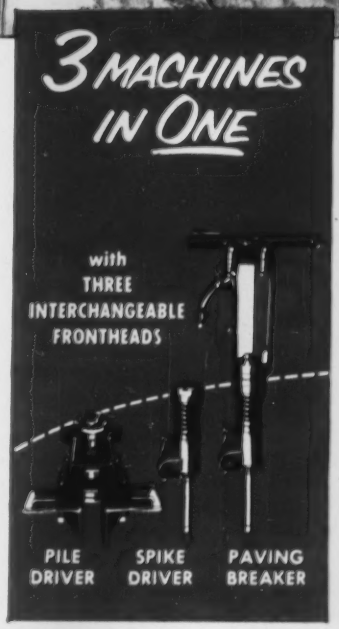
Ingersoll-Rand PB-8A Paving Breaker with pile driver fronthead, driving heavy wood sheeting on a large highway construction job.

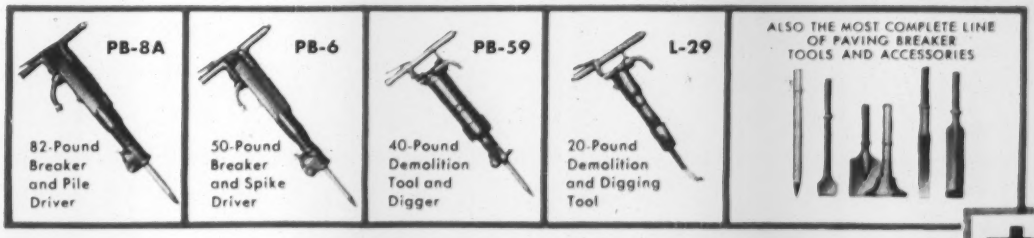
I-R PAVING BREAKER

doubles as a heavy-duty pile driver or spike driver

With an Ingersoll-Rand PB-8A Paving Breaker and two easily interchangeable frontheads, you actually have *three tools in one*—a heavy-duty paving breaker, a powerful pile driver and a spike driver. The pile driver head has a large striking face and is adjustable for sheeting up to 3" in thickness. A spike driving fronthead is also available for the light-weight PB-6 Breaker.

With Ingersoll-Rand's most *complete* paving breaker and accessory line, you can save time, effort and expense by matching the *breaker* to the *job*. Ask your I-R man for complete information, or send today for a copy of Bulletin 4127.





CONTRACTORS' COMBINATION

Ingersoll-Rand

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THE BEST AIR EQUIPMENT FOR BETTER HIGHWAYS

Labor

Largest refinery ever built as a single unit–Tidewater's new $200 million installation constructed in Delaware by C. F. Braun & Co.–has an impressive labor record behind it.

Big Project Is Built Fast—And

Labor trouble makes big headlines, but labor peace seldom does. The troubles at Paducah, Ky., were reported extensively. No one, however, had much to say when a project almost as big—Tidewater Associated Oil Company's new Delaware refinery—was completed with a spectacularly good labor record that stemmed from foresight, good faith and effective labor-management cooperation.

Here's the record:

The $200 million project, located 15 miles south of Wilmington, includes the largest refinery installation (130,000 barrels a day) ever built at one time, plus a 50,000 kw power station (owned by Delaware Power and Light, but principally a power supply for the refinery).

The project took 20 million man-hours to complete. Work spanned a 2 year period (Mar., 1955 to May, 1957). Peak employment was 10,000. Some 25,000 persons were employed; 20 unions were involved.

In all this, there was never a shutdown. Man-hours lost due to work stoppages of any sort were less than 0.3% of the total. C. F. Braun & Co. of California, designer and general contractor, which did 90% of the construction work, recorded only 57,000 man-hours lost. Of those, 50,000 were accounted for by general strikes of carpenters and millwrights during area wage negotiations.

Quite a record. What explains it? Partly, a careful working out of agreements in advance, trying to anticipate possible points of dispute before they came up. But more than that, a mutual determination by Braun and the unions to work out their problems peaceably.

• **Groundwork**—Paul Wetcher, Braun's labor relations manager, laid the groundwork. In January of 1955, three months before the scheduled start of construction, Mr. Wetcher went to Miami, where the executive board of the AFL Building and Construction Trades Department was meeting. His purpose was to get labor's ideas on job procedures and agreements, and to elicit its cooperation.

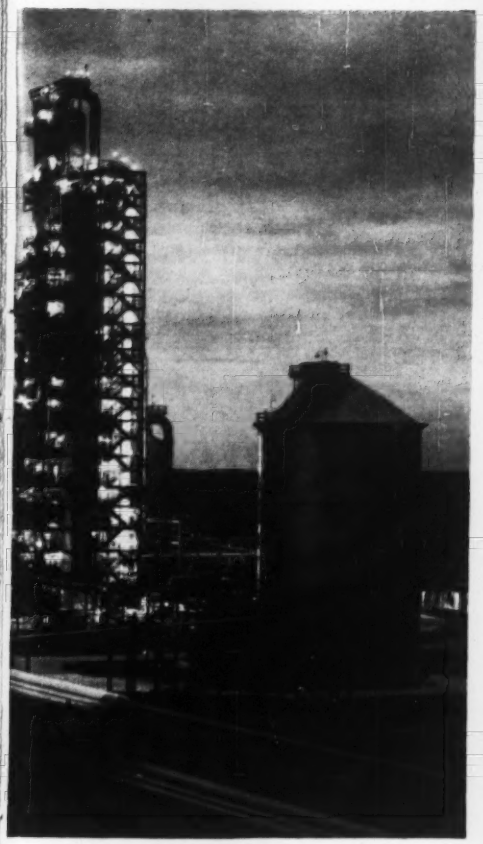
Building Trades President Richard Gray and international union presidents were highly receptive. They agreed thoroughly with Mr. Wetcher's premise that a job of this size would be in the public eye, and that, if for no other reason than public relations, it behooved all concerned to see that things went smoothly.

Mr. Wetcher outlined the job, got the union men's thinking on working conditions, grievance procedures, jurisdictional questions. He also talked over recruitment and the part the internationals would necessarily have to play in it.

Next step was a series of meetings on the local level in Wilmington. There were four sessions, attended by Braun negotiators, Wilmington Building Trades Council officials, local and international union representatives of the 13 crafts with which Braun would be dealing (remainder of the 20 were principally involved with subcontractors).

• **Project agreement**—Every angle of the project was explored by the conferees, and a project labor agreement arrived at, spelling out wages, hours, standard holidays, grievance procedures.

What Braun was most anxious to achieve was a good grievance procedure with a no-strike provision, and this it got, even though no-strike provisions were not characteristic of the local pattern.



Keys to project's success . . .

- **Labor participation—local and international**
- **An understanding on jurisdictional disputes**
- **Good faith and effective cooperation**
- **Pre-construction conferences**
- **Detailed safety program**
- **Project labor agreement**
- **Foresight and planning**

Peacefully

The grievance procedure called for attempts at settlement of disputes first between stewards and craft supervisors or the Braun labor relations man on the spot. If not settled on that level, Braun would work with business agents. Next, Braun would deal with the international unions, and if that wasn't successful, the matter would go to arbitration, with umpire's decision final and binding.

During the time of the grievance procedures, strikes, work stoppages, or lockouts were prohibited.

The project agreement was signed by only five unions—iron workers, boilermakers, laborers, sheet metal workers, operating engineers.

"That doesn't sound like a very successful master agreement—only five signing out of 13," says Mr. Wetcher. "But it was. Since all crafts participated in the meetings, they all considered themselves committed by the spirit of the decisions made."

Most of the non-signers refrained because they didn't want a specific agreement to supersede their permanent national agreement with Braun. (Braun has permanent agreement with asbestos workers, boilermakers, pipefitters, carpenters, ironworkers, electricians, operating engineers, painters, sheet metal workers, cement masons, laborers.)

Teamsters preferred to have no formal agreement. They operated under a "handshake agreement" between Braun and the teamsters' construction drivers.

The important thing about the meetings, Mr. Wetcher feels, was the discussion, the meeting of minds, the tenor of cooperation that was established.

The principles agreed upon applied to subcontractor work. Before subs started a project, there was a pre-job meeting between Braun, the sub, and the affected crafts (which included

The construction labor force was big and varied . . .

CONSTRUCTION spanned a two-year period, gave employment to 25,000 men from far and near. Labor force at peak was 10,000. Twenty unions—whose trades were identified by color and tape on safety hats—worked on the project's construction.

BRAUN TROUBLE SHOOTERS were Paul Wetcher (right), labor relations manager who worked out master labor plan, and Elliott Condon, resident labor manager.

some, such as roofers, tile setters, stone cutters, marble polishers, which did not work directly for Braun).

There was a total of 95 subs on the job during the life of the project. Some had sizeable contracts, but in sum they did only about 10% of the work, since Braun performs many operations usually subcontracted. On this job it did almost all electrical work, erected all structural steel, did all insulation work, the majority of painting (all except a tank farm subcontracted in toto).

• **Jurisdictional problems**—The project agreement did not cover jurisdictional matters. But these were discussed genetally, and in other meetings prior to starting any work those that might be controversial were canvassed in more detail.

In general, it was agreed to follow the procedure of the National Joint Board for the Settlement of Jurisdictional Disputes, which calls for following local area practice where there has been no previous board decision covering the work involved. For an operation which might be performed by different crafts in different sections of the country, the work would go to the craft customarily performing it in the Wilmington area.

Specific points that might give trouble were covered as far as possible. For examples:

• A 45 page list of apparatus was gone over with the international representatives of the pipefitters and boilermakers unions.

• Installation of air conditioning and heating and ventilating units was settled.

• Since the great variety of pipe supports offered rich ground for disputes, agreements were reached on all of them—pictures drawn so that there could be no misunderstanding—and the agreements signed.

• It was clearly established in the project agreement that if a manufacturer came on the job to repair something, and couldn't use building trades labor, he could use his own.

As Mr. Wetcher says, the best agreements in the world won't keep the peace by themselves. It takes the good faith of all parties; and this, he feels, the Tidewater project had.

Plenty of disagreements came up. But only three jurisdictional disputes reached the point of work stoppages, and they caused a total of only 2,500 lost manhours. Five grievances caused 4,500 lost manhours.

Much of the credit for this goes to Braun's Elliott Condon, resident manager of labor relations. The Braun people felt that the company's position had to combine firmness and fairness, and Mr. Condon was responsible for the day-to-day implementation of that policy.

Supervisors were given strict orders that all work assignments were to originate from Mr. Condon's office. With several hundred men in a position to direct work to be done, there were bound to be slip-ups—and some cases where men on the lower levels of supervision, who were union members, tried to give work to their own crafts.

When a steward had a complaint, either jurisdictional or other, he reported to the craft supervisor; if it couldn't be settled on that level, they both came to Mr. Condon.

When there was a dispute between two crafts not covered by local practice or prior agreement, Mr. Condon made every effort to have the crafts settle it themselves. If they didn't, then it was "If you can't agree, we'll take the responsibility for making an assignment." Since they'd rather reach an agreement than have the employer make an assignment, usually they came to terms.

Mr. Condon classifies 33 of the jurisdictional disputes as major. Only three were referred to the National Joint Board. All three of these were settled before the board acted. Only one of these three jurisdictional disputes resulted in a work stoppage.

• **Grievances**—Most grievances were handled either at the craft-steward supervisor level, or at the next step, negotiation between Mr. Condon and a business agent. Only a few went to international union representatives, and none went to an umpire. No umpire was ever appointed, in fact.

The five work stoppages that resulted from grievances were all of brief duration—not more than a day or two—affecting only a relatively few men each.

Messrs. Wetcher and Condon have high praise for international union presidents and their representatives for their contribution to the project's smooth course. They maintained close touch with the job throughout; some appointed headquarters representatives to be permanently on tap to handle project calls.

An example of their influence: When one local tried to force overtime, the international of that craft investigated, found there were enough men available to handle the work on straight time, and persuaded the local to drop the matter. (The project at no time went to scheduled overtime.)

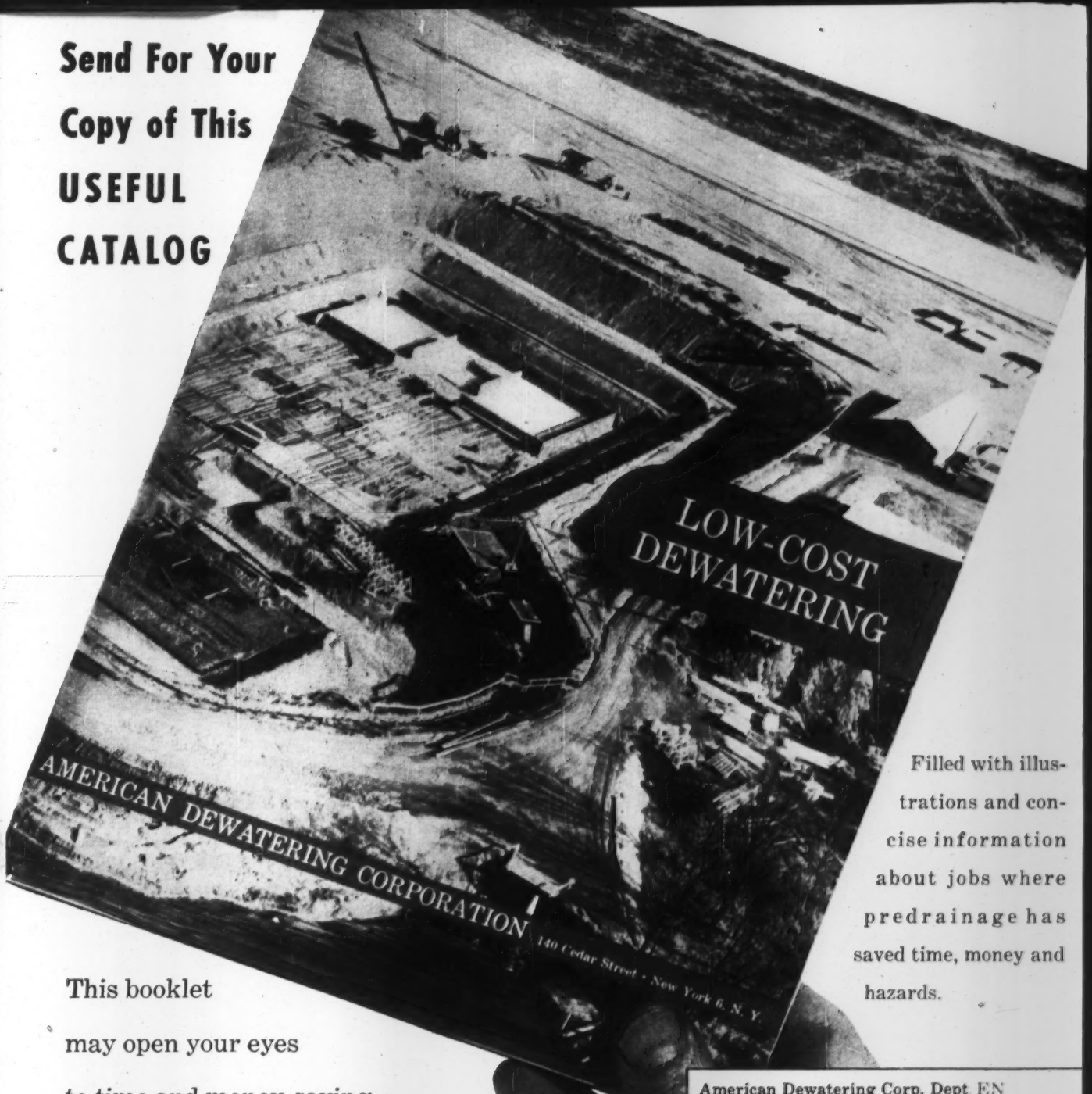
The Braun men also feel the internationals did a great job on recruitment. The unions accepted the responsibility of manning the job. If the necessary manpower wasn't available locally the international stepped in to help. And Braun also did its own recruiting when serious shortages arose or its overall needs were not met.

Braun feels it's obvious the job simply couldn't have been manned without good work on the part of the internationals. Pipefitters are the outstanding example. They made up about a quarter of the workforce; that meant 2500 men when the workforce was at its peak. The local had only three or four hundred on its roles, most of whom were employed. To find so many meant drawing from the whole country.

The pipefitters recruited through all their locals. Not only that, but the

(*Continued on page 139*)

Send For Your Copy of This USEFUL CATALOG



Filled with illustrations and concise information about jobs where predrainage has saved time, money and hazards.

This booklet may open your eyes to time and money-saving possibilities in jobs you now are, or will be, engaged on. Fill out the coupon and your copy will be mailed promptly.

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Please send me a copy of "Low-Cost Dewatering."

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AMERICAN DEWATERING CORPORATION

140 Cedar St. New York 6	4900 S. Austin Ave. Chicago 38, Illinois	7701 Interbay Blvd. Tampa 9, Florida	315 W. 25th St. Houston 8, Texas	Rockaway, New Jersey

Capacities: 900, 600, 365, 210 and 125 cu. ft. 75 cu. ft. model built in piston type.

Six CP Rotaries selected for sea duty!

Six 900 cu. ft. "Power Vane" Rotary Compressors have been called for sea duty aboard an 800-ton, sea-going barge owned by the Creole Petroleum Company. Chicago Pneumatic Rotaries were selected for this special detail because of their record of dependability on heavy construction projects... and because they require a minimum of attention.

This battery of "Power Vane" 900's will furnish all the air needed to drive piling and to power the barge's winches and jetting pump while constructing off-shore drilling platforms in Venezuela. *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, New York.*

Chicago Pneumatic

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

pipefitters' president, Peter Schoemann, made an additional move that Mr. Wetcher thinks is historic. He went to Walter Reuther, whose UAW and the pipefitters have had many jurisdictional disputes during a slack period of automobile production when many UAW men were laid off.

The move didn't produce many workers. But to Mr. Wetcher this is a prime example of the unions' harmonious relations with Braun and with each other on this job—and he likes to think also that this kind of inter-union cooperation may carry over into the future.

• **Safety**—The safety record of the Tidewater project was notable, too. Frequency for the Braun work was six, as against the construction average of 19 figured by the National Safety Council. Severity was 0.16, as against a national average of 2.36.

Here are some of the reasons that accounted for this record:

• In addition to a resident company safety engineer—K. A. Hyde—there was a full-time safety engineer for every 1,600 employees. The work was divided into four areas with an assistant safety engineer assigned to each. The safety engineers had full authority to shut down any activity they regarded as dangerous.

• Every new employee reporting to the job was given a safety indoctrination talk, a copy of the field-construction safety rules and a 72 page safety booklet.

• A flagging system throughout the job showed when, in the judgment of the safety engineer, an excavation or scaffold was safe to work on. A red flag showed the area to be unsafe, a yellow flag, safe. No-smoking areas, electrical hazards, etc. were fully marked. Speed limits were posted and enforced.

• Safety engineers made regular inspections against a check-sheet, crediting good conditions as well as reporting those unsafe.

• Procedures were drawn up for everything. Every equipment operator and flagman received a set of drawings called Safe-Rigging Notes.

There was only one fatality on Braun work. It occurred last December, after 14 million man-hours. (National construction average is 3 million man-hours per fatality.) Subs had a total of four fatalities.

In talking about the Tidewater project, Mr. Wetcher almost apologizes for the glowing picture he paints.

"But that's the way it was," he says. "It may sound like whitewash. It's not. I can't speak too highly for the cooperation we got."

Wage Strikes Ease Up

New York and Cincinnati workers return to jobs, Californians remain out

A building trades strike in New York City and a five-week-old teamsters strike in Cincinnati came to an end last week, but strikes of plumbers, hod carriers and sheet metal workers continued to plague the construction industry in southern California.

In New York, the sheet metal workers—last of the trades to remain on strike—settled for a 75 cent wage boost payable in six installments spread over the term of the three year contract. Fringe benefits, now set at 8% of the basic rate (which became $3.90 as of July 1) plus 20 cents an hour, remain unchanged. Four trades—plumbers, boilermakers, slate and tile roofers, and stone cutters, whose contracts expired June 30—continued to negotiate without striking. And sand, gravel and ready-mix concrete truck drivers in teamsters Local 282 were holding in abeyance further action on whether or not to strike.

The Cincinnati strike of concrete mix and building material truck drivers was settled with a two year agreement carrying wage boosts of 25 and 30 cents—18 cents now for tandem drivers and 13 cents for the others, with 12 more cents for each next year. Strike had halted an estimated $12 million worth of projects and idled some 8,000 construction workers.

Most significant development in the southern California strike against subcontractors was a July 17 superior court decision that enjoined plumbers from using "divide and conquer" tactics against the Plumbing, Heating and Piping Employers Council. The union is restrained from inducing members to break away from the association to sign individual contracts, and from striking to get contract inclusion of superintendents and limitations on the use of prefabricated material.

Meanwhile, a thousand Seattle construction wiremen in Local 46 of the electrical workers union won a 15 cent wage boost, retroactive to July 1, in a one year contract with the National Electrical Contractors Association.

And in Atlanta, the Associated General Contractors has signed two year contracts with seven trades, giving a package increase (no new fringe benefits) of 30 cents an hour to carpenters, cement masons, laborers and teamsters, 40 cents to bricklayers and 37½ cents to operating engineers.

OFFICIAL PROPOSALS

Bids: August 12, 1957

Contract No. 2007

WASHINGTON SUBURBAN SANITARY COMMISSION
MARINA

Sealed proposals for construction of a marina, in connection with the Anacostia River Flood Control and Navigation Project, Bladensburg, Maryland, which work involves an Administration building and approximately 19,200 square feet of wood or steel bulkhead, 13,000 lineal feet of piles, 104,700 cubic yards of fill, access roads, parking areas, sidewalks, 4 piers, 1 quay, electrical work, water mains, sewers and storm drains and incidental work, will be received at the office of the Secretary of the Washington Suburban Sanitary Commission, Hyattsville, Maryland, until Monday, August 12, 1957 at 12:30 P. M. Eastern Daylight Saving Time, at which place and time they will be publicly opened and read.

Plans, Proposal Form and the Specifications for this contract may be obtained from the office of the Chief Engineer of the Commission, upon deposit of $50.00, which deposit will be returned to bidders or to those returning plans and forms in good condition within 10 days after opening of bids.

T. Earle Bourne, Chairman
Frank L. Hewitt, Jr., V-Chairman
J. Norman Ager
James B. Bland
Willard A. Morris
L. S. Ray
Commissioners

Attest:
John T. Bonifant
Secretary

Bids: August 20, 1957

People's Water Supply Company Phillipsburg, New Jersey

HIGH SERVICE WATER SUPPLY SYSTEM

Sealed bids will be received until 8:00 P.M., EST, on August 20, 1957, in the office of the People's Water Supply Company, Phillipsburg, New Jersey, for the construction of a high service water supply system. The system will consist of a pumping station, storage tank, approximately 5100 feet of cast iron pipeline and appurtenances.

Contract documents may be seen at the office of the People's Water Supply Company, Phillipsburg, New Jersey, and at the office of Tippetts-Abbett-McCarthy-Stratton, Engineers, 62 West 47th Street, New York 36, N. Y. Copies will be furnished by the People's Water Supply Company upon deposit of $25.00 for each set complete, $20.00 of which will be refunded upon return of the set in good condition within one week after the award of the Contract.

Each proposal shall be accompanied by a proposal guaranty, which shall be either a certified check made payable to the People's Water Supply Company, or a bid bond, in the sum of 5% of the total amount of the bid. Return of the bid guaranty is covered in the Information for Bidders included with the Contract Documents.

The People's Water Supply Company reserves the right to reject any and all bids and to waive any informality or irregularity in bids received.

THE PEOPLE'S WATER SUPPLY COMPANY
John Exley
President and Superintendent

OFFICIAL PROPOSALS

Bids: August 29, 1957.

Central School District No. 1 Yorktown, Etc.

NOTICE TO CONTRACTORS:

Sealed proposals for the construction of three new elementary schools and an addition and alteration to one existing elementary school, all in Central School District No. 1, Towns of Yorktown, Somers and Cortlandt, Westchester County, and Putnam Valley, Carmel and Phillipstown, Putnam County, will be received by the Board of Education of said school district at its office, Lakeland High School, U. S. Route 6, Mohegan Lake (near Peekskill, New York) Westchester County, New York, on the 29th day of August, 1957, at 8 o'clock p. m. (D.S.T.), at which time and place the proposals will be publicly opened and read. The proposals will be for the construction of three new elementary schools and one addition as follows:

1. New elementary school on the Gomer Street site, Town of Yorktown, Jefferson Valley, N. Y. (Proj. 5604).
2. New elementary school on the Lexington Ave. site, Town of Yorktown, Mohegan Lake, N. Y. (Proj. 5605).
3. New elementary school on the Lincoln Ave. site, Town of Cortlandt, N. Y. (Proj. 5609).
4. Addition and alterations to Van Cortlandtville School, Town of Cortlandt, N. Y. (Proj. 5603).

The three new elementary schools are substantially identical, except for necessary grading, utilities and foundations.

Separate proposals for each of the projects as well as combined proposals for two or more projects will be received for the following work:

Contract No. 1 General Construction
Contract No. 2 Plumbing
Contract No. 3 Heating and Ventilating
Contract No. 4 Electric
Contract No. 5 Site Development
Contract No. 6 Food Service Equipment

Proposals shall be made in the form set forth in the contract documents. Those desiring to bid upon more than one project should, in addition to bidding upon each project, also complete and execute the form entitled "Combination Bids."

Forms of proposals, drawings, specifications and other contract documents may be obtained by bidders at the office of the Architects, Reginald E. Marsh & Associates, 101 Park Avenue, New York 17, New York, upon deposit of the following sums: General Construction, Plumbing, Heating & Ventilating and Electrical documents—$60 for the three elementary schools and $25 for the alterations and additions to the Van Cortlandtville School; Site Improvement documents $20 for the three new schools; Food Service Equipment documents $20 for all four schools.

Deposits will be returned in full to the bidder upon return of the documents in good condition within thirty (30) days after the opening of bids provided that a formal proposal has been submitted by the bidder. Complete sets of plans and specifications for contracts 1 to 4 inclusive will be issued to each prospective bidder. Additional sets or portions thereof as required may be obtained by any bidder upon payment of the cost of reproduction. One-half of the amount of deposit check or checks shall be forfeited by any Contractor failing to submit a proposal for at least one project.

Each bid must be accompanied by a certified check made payable to Board of Education for five per cent (5%) or an approved bid bond in the amount of ten per cent (10%) of the amount of the bid as a guarantee that in case of award of the contract to the bidder, he will within two weeks thereafter execute the contract and furnish the required bonds and upon failure to do so he shall forfeit the security as liquidated damages.

The checks or bid bonds of all except the three lowest bidders will be returned within ten days after the opening of the bids, and the remaining checks or bid bonds will be returned when the contract is executed, or in any event within 45 days after the opening of the bids. No bid may be withdrawn within forty-five days after the actual date of opening thereof.

The successful bidders will be required to furnish a performance bond in approved form and with sureties satisfactory to the Board, which bond shall be in the amount of the contract and shall be conditioned upon the faithful performance of the contract, and a separate labor and material bond in the amount of the contract price conditioned upon the payment of all just claims for materials and labor furnished under the contract.

OFFICIAL PROPOSALS

The Board of Education reserves the right to waive any informalities in or to reject any or all bids, and to award contracts upon such combination bids as it may consider to be for the best interest of the District.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and wage rates to be paid under the contract.

BY ORDER OF THE BOARD OF EDUCATION, CENTRAL SCHOOL DISTRICT NO. 1, TOWNS OF YORKTOWN, SOMERS AND CORTLANDT, WESTCHESTER COUNTY AND PUTNAM VALLEY, CARMEL AND PHILLIPSTOWN, PUTNAM COUNTY.

Thomas Rockett
President of Board of Education
July 16, 1957.

Bids: July 30, 1957

Construction of Sewerage and Water Supply in Waddington

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
FOR THE
CONSTRUCTION OF SEWERAGE
AND
WATER SUPPLY IN WADDINGTON
ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. PA-5-11029
ST. LAWRENCE CONTRACT NO. 37

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of sewerage and water supply in Waddington, St. Lawrence County, New York, until 2:30 P.M. Eastern Daylight Saving Time on the 30th day of July, 1957, at the Authority's office, 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are:

(1) 5,510 linear feet of pipe (6", 8" and 10" vitrified clay and cast iron).

(2) Construction of one 500 g.p.m. and one 200 g.p.m. sewage pumping station and installation of Authority furnished Shone duplex sewage ejectors and sump pumps.

(3) Construction of Well Pump House and installation of the following Authority furnished equipment:

2—200 g.p.m. deep well pumps
2—200 g.p.m. centrifugal pumps
1—stand-by engine generator plant
Pump controller system

All work shall be completed on or before May 1, 1958.

Plans, Specifications and Proposal Forms for the work, may be obtained from the Power Authority of the State of New York, at 18th floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York upon application and prepayment of a fee of ten ($10.00) dollars per initial set of contract documents, and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4943) will be received at Ephrata, Washington until August 27, 1957, for furnishing labor and materials for Earthwork, Concrete lining, and Structures, Wahluke Branch Canal, Station 171+13 to Station 333+20, Columbia Basin Project, Washington. Location near Othello, Washington. Principal items are 444,000 cu. yds. excavation; 9,930 cu. yds. concrete in canal lining; 161 cu. yds. concrete in structures; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: August 12, 1957.

Daura Bridge, Baghdad

ADVERTISEMENT
Government of Iraq
Development Board & Ministry of Development
Technical Section II

1. A new highway bridge is to be designed and constructed over the River Tigris in Baghdad approximately 300 metres South of the Iraq Cement Works.

2. The bridge shall carry a 14 metre roadway and two 3 metre footways, and shall have a total length between abutments of 384 metres or thereabouts.

3. It is the ultimate intention of the Ministry of Development to invite a limited number of suitable firms of international repute to submit their proposals for the complete design and construction of the bridge.

4. In the first instance however, firms or joint venture groups interested in being considered for final selection and invitation to participate, are requested to submit full details of their organization, capacity and qualifications for design, capacity for construction, experience of works of a similar nature and for whom executed, and all other relevant particulars, so as to arrive by registered mail in the offices of Technical Section II, Ministry of Development, Baghdad, Iraq, not later than 12 noon on Monday, 12th August 1957. Envelopes should be endorsed "Daura Bridge."

5. A limited number of firms will be selected by the Ministry from those submitting particulars under para (4) above, and such selected firms will be invited to prepare and submit designs and priced tenders for construction based upon full survey and site investigation details, Conditions of Contract, and Specifications, prepared by the Ministry's Consulting Engineers, Messrs. Coode & Partners, London, England.

6. A period of approximately three months will be allowed for the preparation and submission of designs and tenders, which will then be checked by the Consulting Engineers, and presented to the Development Board with a recommendation for acceptance of one tender.

7. All firms participating in the final submission, and whose designs and quotations are checked and found to be proper, reasonable, and practicable, shall each receive the sum of ID.750/—from the Ministry of Development in recognition of their services.

8. Any further information regarding the project may be obtained from Technical Section II, Ministry of Development, Baghdad, or from Messrs. Coode & Partners, 9, Victoria Street, London, S.W. 1, England.

Minister of Development

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4941) will be received at McCook, Nebraska, until August 20, 1957, for furnishing labor and materials for earthwork and structures for Driftwood West Canal, Laterals, Wasteways, and Drains, and Driftwood Laterals 23.5 to 28.5, inclusive, Frenchman-Cambridge Division, Missouri River Basin Project. Location near McCook, Nebraska. Principal items are 324,000 cu. yds. excavation; 3,600 sq. yds. earth canal lining; 1,153 cu. yds. concrete; 17,800 lin. ft. concrete pipe; and other work. Completion time 235 and 550 days. For particulars, address Bureau of Reclamation, P. O. Box 737, McCook, Nebraska; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Read the Official

Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: August 8, 1957

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, Public Buildings Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 8th day of August, 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany, N. Y.						
Albany & Greene	R.C.57-127	Br. No. 4, S.H.364; Br. No. 1, S.H. 8388; Br. No. 3, S.H. 1220; Br. No. 1, S.H. 5370; Br. No. 5, S.H. 997; Br. No. 1, S.H. 998; Br. No. 5, S.H. 1774B; Br. No. 1, S.H. 1774 and Br. No. 2, S.H. 1774	....	Cleaning and Painting 9 Bridges	$600 Plans $10	$11,000
Greene (Rte. 81)	R.C. 57-128	Cooksburg-Greenville Pts. 2 & 3, S.H. 8197	5.87	Asphalt Concrete	$12,000 Plans $10	220,000
Greene (Rte. 385)	R.C. 57-129	Catskill Village, Bridge No. 1, S.H. 5716	0.10	Reconstruction of Abutments, Wingwalls, Sidewalks; Etc. on Exist. Bridge	$1,200 Plans $10	23,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Herkimer (Rtes. 5 & 167)	FAC 57-8 FARC57-137	City of Little Falls: Route 167 Arterial, Easterly Section Little Falls-Dolgeville, S.H. 133 Project U-F-584(3)	0.69 (0.06) (Int.)	Asphalt Concrete, Ty. 1A	$11,000 Plans $10	210,000
Montgomery	C.R. 57-2	City of Amsterdam: Rte. 5S Arterial Connection, FAC 55-8	....	Removal of Human Remains	$1,200 Plans $10	22,000
Montgomery & Oneida	M 57-15	Erie Canal Bridges at Randall, Utica, Whitesboro, Rome and New London	....	Cleaning and Painting 5 Bridges	$1,600 Plans $10	30,000
Montgomery & Oneida	M 57-10	Barge Canal Terminal at Utica Barge Canal Terminal at Fonda	0.44	Wire Mesh Fencing and Gates	$400 Plans $10	8,000
Oneida (Rte. 8)	FARC 57-138	Utica-Bridgewater, S.H. 559 Clayville Village, S.H. 5079 Project F-522(2)	1.71 (0.51) (Int.)	Asphalt Concrete	$24,000 Plans $15	445,000
Oneida (Rte. 49)	FARC 57-139	Vienna-New London, S.H. 1150 Project F-U-624(5)	0.57	Asphalt Concrete Prestress. Conc. Beam Br. 251.8'	$22,000 Plans $10	406,000
DISTRICT No. 3, Wm. Robinson, District Engineer, Weigh Lock Bldg., Syracuse, N. Y.						
Cayuga & Seneca (Rte. 31&89)	R.C. 57-140	Br. No. 3, Canoga-Halsey Corners, S.H. 8363 Br. No. 1, Montezuma-Port Byron, S.H. 5610	....	Cleaning and Painting 2 Bridges	$700 Plans $10	12,000
Cayuga & Wayne (Rte. 370 & 104)	FARC 57-130 FASH 57-14 FASH 57-15	Wolcott-Red Creek, S.H. 5290; Victory-Red Creek Pt. 1, S.H. 8048; S.H. 5290-Westbury and Westbury-S.H. 8048 Proj. F-114(2)	5.39	9" Cem. Conc. Pavt. 24-48' Wide = 5.25 Mi. Misc. Work = 0.14 Mi.	$60,000 Plans $15	1,102,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	Losp 57-2	Lake Ontario State Parkway, Sects. B-C-D and East Monitou Rd.	9.20	Roadside Development	$7,000 Plans $25	131,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court St., Buffalo, N. Y.						
Chautauqua & Erie (Rte. 5)	R.C. 57-132	Southwestern Boulevard, S.H. 1852 (Br. No. 1)	....	Cleaning and Painting 1 Bridge	$1200 Plans $10	23,000
Niagara	M 57-12	Erie Canal Bridges at Vernon St.; and Main St.; Middleport; C.R. 94 and Gasport	....	Cleaning and Painting 4 Bridges	$800 Plans $10	15,000
DISTRICT No. 6, J. H. Thomas, District Engineer, 30 West Main St., Hornell, N. Y.						
Steuben (Rte. 17)	FARC 57-131	Big Flats Gibson, S.H. 742 East Corning-Horseheads, Pt. 1, Fash 55-5 Project F-661(7)	0.62 (0.84) (Acc.)	9" Cem. Conc. Pavt. 24' Wide = 0.26 Mi. Asph. Conc., Opt. = 1.11 Mi. Misc. Work = 0.09 Mi. Hy. Sep. Comp. I-Beam 189.8'	$22,000 Plans $15	405,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Jefferson (Rte.3)	FARC 57-133	Carthage Village: State and School Sts. and West End Ave., S.H. 5344 Carthage-Wilna, S.H. 624 Fargo-Natural Bridge, S.H. 8190 Project F-273(4)	4.11	Asph. Conc. = 4.10 Mi. Misc. Work = 0.01 Mi.	$78,000 Plans $15	1,424,000
St. Lawrence, New York & Grenville, Ontario, Can.	OBA 57-2	Ogdensburg Bridge, Cont. No. 2	....	Bridge Substructure (Piers C1 to C14 and U1 to U13 Incl.)	$166,000 Plans $15	3,015,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley, Poughkeepsie, N. Y.						
Ulster (Rte. 213)	FARC 57-134	Kingston-Rifton, S.H. 116 Eddyville Bridge, S.H. 5192 Project U-S-485(1)	0.38	9" Cem. Conc. Pavt. 24' Wide = 0.34 Mi. Asph. Conc. = 0.04 Mi. Hinged Steel Arch Br. 340'	$40,000 Plans $15	738,000
Westchester & Bronx	BRP 57-1 CCP 57-1	Bronx River Parkway (Lower Section) Part 1 and Part 2 Cross County Parkway	3.02	Roadside Development	$10,000 Plans $15	192,000
Delaware (Rte. 28&30)	FARC 57-80 R.C. 57-81	Andes-Margaretville, S.H. 8017 Margaretville-Halcottsville, S.H. 5344 Project S-459(1)	0.48	9" Cem. Conc. Pavt. 22'-40' Wide = 0.36 Mi. Asph. Conc., Opt. = 0.09 Mi. Misc. Work = 0.03 Mi.	$11,000 Plans $10	210,000
Delaware & Schoharie (Rte. 23)	R.C. 57-135	Grand Gorge-Stamford-Harpersfield, S.H. 5343	5.88	Asphalt Concrete	$30,000 Plans $10	545,000
Otsego (Rte. 7)	FARC 57-121	Wells Bridge-Otsego, S.H. 5153 Project F-628(6)	3.53	Asphalt Concrete Widen Exist. R.C. Beam Br. 30' Widen Exist. R.C. Beam Br. 36'	$35,000 Plans $15	613,000
DISTRICT No. 10, M. E. Gould, District Engineer, Little East Neck Rd., Babylon, L. I., N. Y.						
Nassau (Rte. 25D)	FAHHE 57-2	Horace Harding Expressway Extension Cont. #4 (Willis Ave. to Guinea Woods Rd.) Project U-862(13)	5.83 (5.50) (Acc.)	9" Cem. Conc. Pavt. (Carbon Black) 26'-36' Var. Wide = 1.82 Mi. 9" Cem. Conc. Pavt. Var. Wide = 2.16 Mi. Asph. Conc., Opt. = 2.86 Mi. Misc. Work = 4.49 Mi. 2 Hy. Seps. R.C. Rigid Frames 87.1' and 44.6' 5 Hy. Seps. Comp. Steel Girders 80.8', 273.5', 182.3' 137.5' and 180'	$295,000 Plans $100	5,355,000
Suffolk	SMSP 57-1	Sunken Meadow Spur Parkway, Cont. 8	7.07	Planting and Seeding	$11,000 Plans $15	202,000
Suffolk (Rte 27)	R.C. 57-136	Westhampton-Quogue, S.H. 1571 Br. No. 138 Patchogue-Moriches, S.H. 5488 Br. No. 134	....	Cleaning and Painting 2 Bridges	$450 Plans $10	8,000
Suffolk	B.P. 57-65	Point O'Woods and Ocean Bay Park	1.42	Hydraulic Fill (Beach Protection	$5,000 Plans $10	97,500

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wages, Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

Re: O.B.A. 57-2, St. Lawrence County, N. Y., and Greenville, Ontario, Canada: Maps, plans, specifications and proposals may be seen and obtained at the offices of Dr. P. L. Pratley, 909 Drummond Building, Montreal, Canada, and at Modjeska and Masters, Forster at 6th Street, Harrisburg, Pa.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

JOHN J. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: August 20, 1957

Pier No. 1
Bulkhead

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
CONTRACT BP-150.013

Sealed proposals for the construction of a prestressed concrete or steel sheet pile bulkhead for Pier No. 1 to be constructed at the Brooklyn-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, August 20, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bill will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, July 25, 1957

Bids: August 1, 1957

Notice Re: Prequalification forms for Contractors

BOARD OF EDUCATION—BUREAU OF CONSTRUCTION

NOTICE IS HEREBY GIVEN THAT The Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, N. Y. will receive applications for prequalification of bidders from Contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:

General Construction, Plumbing & Drainage, Heating & Ventilating, & Electrical Work & Lighting Fixtures for the following schools:

Borough of Brooklyn P.S. 270, DeKalb and Classon Ave's., new building.

Borough of Queens P.S. 24, Holly Ave., bw't Union & Robinson Sts., Flushing. Modernization & new addition.

Borough of Richmond P.S. 3, So. Goff Ave., Latowrette St., Cordelia Ave. & Everett Place, Pleasant Plains.

Pre-qualification application forms will have to be secured and must be submitted to the Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, L. I. C., New York.

Bids when advertised will be received from prequalified bidders only.

Time for submitting prequalification applications by contractors will expire on Thursday, August 1, 1957.

WILLIAM H. CORREALE, Superintendent of School Buildings, Design and Construction.

Dated: July 11th, 1957.

Department of Commerce, Bureau of Public Roads, July 10, 1957. SEALED BIDS will be received at the office of the Bureau of Public Roads, First National Bank Building, Florence, Alabama, until 10:00 a.m., C.S.T., AUGUST 13, 1957, for Project 35G,-14,17, Natchez Trace Parkway, Webster County, Mississippi. Three Reinforced concrete bridges, over Line Creek Canal and two County Roads, and other work. Aggregate length: 0.147 mile. The approximate quantities of the more important items are 29,050 cu. yd. Excavation and Borrow, 1,672 cu. yd. Concrete, 245,025 lb. Reinforcement Steel and 10,800 lin. ft. Treated Timber Piles. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above or Bureau of Public Roads, 1140 Columbia Pike, Arlington, Virginia. H. J. Spellman, Regional Engineer.

Bids: August 20, 1957

Pier No. 1
Deck and Fender Construction

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
CONTRACT BP-150.011

Sealed proposals for the construction of a pier deck and fender system for Pier No. 1 to be constructed at the Brooklyn-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, August 20, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, July 25, 1957

Bids: August 20, 1957

Pier No. 10
Dredging & Fill

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
CONTRACT BP-160.004

Sealed proposals for dredging and placing of fill for Pier No. 10 to be constructed at Atlantic Basin, Brooklyn-Port Authority Piers, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, August 20, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, July 25, 1957

OFFICIAL PROPOSAL

RATE: $2.10 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: August 20, 1957

Construction of Sewer
Town of Greenburgh

Sealed bids or proposals for the construction of a sanitary sewer and appurtenances in EDGEWOOD ROAD, DUNHAM ROAD, TUDOR PLACE, ESSEX PLACE and SECOR ROAD will be received by the Commissioner of Public Works of the Town of Greenburgh at his office in the Town Hall, Tarrytown and Knollwood Roads, Elmsford, New York, until 11:00 a.m., Tuesday, August 20, 1957, when such bids will be publicly opened and read.

Copies of the Plans and Specifications for said work may be obtained at the office of the Department of Public Works, Town Hall, on deposit of Twenty-Five Dollars ($25.00) for each set obtained. This deposit will be returned upon return of said Plans within thirty (30) days after receipt of bids.

Each bid must be accompanied by cash or certified check made payable to the Supervisor of the Town of Greenburgh in the amount of Three Thousand Dollars ($3,000). Said deposit will be considered as a guarantee that the bidder will enter into a contract for the proposed work if awarded to him and furnish the necessary bonds, and will be forfeited to the Town of Greenburgh if he fails to do so within the time specified. Deposit of the successful bidder will be returned as soon as the contract is signed and the necessary bonds delivered and approved by the Town Board. Deposits of unsuccessful bidders will be returned as soon as the contract is awarded.

The successful bidder will be required to furnish a Surety Company Bond satisfactory to the Town Board in the amount of the contract, guaranteeing the successful completion of the work in accordance with the Plans and Specifications and the payment of all obligations arising thereunder. He will also be required to show Compensation Insurance as required by law and Public Liability Insurance with limits of not less than One Hundred Thousand and Three Hundred Thousand Dollars ($100,000/$300,000) for any one accident.

The Town Board reesrves the right to reject any or all bids or to accept any bid they deem to be in the best interests of the Town of Greenburgh.

BY ORDER OF THE TOWN BOARD OF THE TOWN OF GREENBURGH.
Elizabeth C. Smith
Town Clerk

Dated: Elmsford, N. Y., July 17, 1957.

Many contractors depend entirely upon the

OFFICIAL PROPOSAL COLUMNS

of

Engineering News-Record

for Opportunities to bid. They might not see your announcements if printed elsewhere.

You undoubtedly want their bids on your contracts. Make sure of them on your next contract.

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Subject to Agency Commission.

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Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW ADS and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD
P. O. Box 12, N. Y. 36. August 8th issue closes July 29th

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Gunite Superintendent—Wanted immediately. Middle Atlantic States. State age, experience, availability, salary desired. P-4640, Engineering News-Record.

Engineer-Gunite, wanted immediately, must know estimating, take complete charge of all gunite operations. Executive position ultimately available. P-5355, Engineering News-Record.

Architectural Engineer—with at least 8 to 10 years experience in steel and concrete. Permanent position—associateship possibilities with other if ability proven. Work includes churches, schools and commercial buildings. Air-conditioned offices. Hospitalization and other benefits. Central Pennsylvania architect. Please send resume of education and experience, stating salary requirements and availability, also snapshot and references. P-5527, Engineering News-Record.

Instructors or Assistant Professors for Civil Engineering Department. Master's degree and teaching or practical experience desirable. Preferably to teach courses in Highway Engineering and/or Surveying. One or two positions open starting in September 1957. Nine month year; salaries dependant on education and experience. Civil Engineering Department, University of Nevada, Reno, Nevada.

YOUR ORGANIZATION

Is it complete?

Are you expanding it?

Making Replacements?

Naturally, you are anxious to secure the most suitable man or men available. You want men with the special training that will make them an asset to your organization. You can contact such men through an advertisement in the Employment Opportunities Section of ENGINEERING NEWS-RECORD.

Classified Advertising Division

ENGINEERING NEWS-RECORD
P. O. Box 12 New York 36, N. Y.

POSITIONS VACANT

Field Engineer—Cement Company, Location —New Jersey Area. C E Graduate required. Age—25 to 35. Travel to adjoining states on alternate weeks. Remarkable opportunity with progressive company. P-5542, Engineering News-Record.

Wanted—Experienced Designers on Highways and Bridges. Locations Philadelphia and Harrisburg, Pa. and Columbus, Ohio. Long range work program. Good opportunities to qualified applicants. Reply stating experience, availability and salary requirements. P-5553, Engineering News-Record.

Superintendent of Equipment Maintenance— for large fleet of dump trucks, trailers, and heavy equipment. Must be prepared to take immediate charge of 55 man maintenance operation, including general repairs, PM, tire shop, unit rebuilding and parts department. This is a lifetime job opportunity, not a construction set-up. Send job resume, including salaries earned and references. P-5513, Engineering News-Record.

Assistant City Engineer Wanted: general municipal engineering and administrative duties. Thoroughly experienced. Must be registered in Ohio. Salary $6800 per year. Write giving experience resume to Service-Safety Director, City Building, Mansfield, Ohio.

General Superintendent for Wrecking Projects. Experienced man to plan, direct and supervise multi-story wrecking projects in New York City area. Prefer man who has previously superintended large demolition jobs, but will consired construction superintendent with major project experience. Year-round position with a future. Direct letter outlining your experience, age, earning record and other pertinent data to M. K. Wolfson, Vice-President, Cleveland Wrecking Company (America's foremost demolition contractor—operations Coast to Coast). 826 Seventh Avenue, New York 19, New York.

Estimators—Military & Airfield Work. Architectural, Structural, Civil, Mechanical & Electrical. Quantity Take-Off & Pricing. Overseas. Mild climate. All replies confidential. Write or call Mr. Levy, Builders Estimating Service, 120 Greenwich Street, N. Y. C.

Wanted—Experienced grading and drainage superintendent for position with expanding Michigan contractor. Paving experience would also be valuable but not essential. Write, giving full particulars and salary desired: Canonie Construction Co., South Haven, Mich.

Assistant City Engineer, Barberton, Ohio. Registered Civil Engineer. Apply Director of Public Service, Municipal Building, Barberton, Ohio. List qualifications and experience.

Civil Engineers: Expanding Engineering Department of a progressive city in the Santa Clara Valley 35 miles south of San Francisco. Population 10,072 in 1952, now 26,023. Rapid growth presents opportunity for advancement. Associate C.E.: $610-$742, Graduate in C.E., 3 yrs. exp. and registration in Calif. Registration can be waived temporarily if registered in another state. Assistant C.E.: $527-$641, graduate in C.E. and at least 1 yr. exp. Forward resume of experience, education and personal background to Personnel Office, City Hall, Mountain View, Calif.

Nova Scotia Technical College invites applications for teaching post in hydraulics and allied fields. Preferred qualifications include M.Sc. degree and some experience in research or design. Salary range $5100.00 and up, depending on qualifications. Summers free for research or professional practice. Address application to President, Nova Scotia Technical College, Halifax, Nova Scotia, Canada.

CONSTRUCTION MANAGER

Well established midwest engineering firm has responsible position available for manager of its construction activities. This is a high level management position, requiring capable individual with approximately 10 or more years' experience in the management and supervision of field construction of chemical or petroleum processing units. Salary commensurate with experience and proven ability. Replies will be treated in confidence.

P-5650, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT

Wanted, experienced structural draftsman to supervise the work of six draftsmen, handle job correspondence, subcontracting of drawings, etc.; write stating qualifications and compensation desired. Location midwest. P-5653, Engineering News-Record.

Two positions teaching in Mechanical Engineering Department. Master's degree preferred. Salary depends upon training and experience. Positions open September 15 or later. Address Prof. A. P. Young, Michigan College of Mining & Technology, Houghton, Michigan.

Wanted—Engineering Aide III—Municipal Engineering—to act as chief of party—field and office work. Starting salary—$5,023—annual increase—fringe benefits. Send resume to Town Engineer, Wethersfield, Connecticut.

Wanted: Civil Engineering Draftsmen for work on large Southern California irrigation and drainage project. Desert type climate. Permanent position with excellent opportunity for advancement for qualified men. Salary range $3,600 to $6000 per year, dependent on experience. All applications kept confidential. Must be citizen. Please give full details of experience and education. P-5644, Engineering News-Record.

EMPLOYMENT SERVICE

Wanted Engineers, Designer, Draftsmen, All lines. Chemists, teachers and industrial engineers. Recent grads. Cleveland Engineering Agency, 2132 E. 9, Cleveland 15, O.

POSITIONS WANTED

Young Engineer desires position in construction, will grad. BSCE August, begin work Sept. 4. Summers experience in highway construction and surveying, 1956 party chief, Alaska. PW-5554, Engineering News-Record.

B.C.E. 3 yrs. sanitary, 3 yrs. Navy Public Works exp. Desires position with responsibility and opportunity for advancement in finance, industry or real estate. PW-5649, Engineering News-Record.

(Continued on page 146)

STRUCTURAL
ENGINEERS
DESIGNERS
DRAFTSMEN

Prefer several years or more experience in any of these fields:

BRIDGES

BUILDINGS
EXPRESSWAYS
HYDRO PROJECTS
TEST FACILITIES*

Will consider lesser experience with good educational background, including several recent graduates to round out a planned expansion program. Occasional openings for combination field men. These are permanent additions to our regular staffs.

We are professional engineers engaged primarily in design which covers a wide scope of practice. The variety and unusual character—for example, the proposed world's largest bridge project—offer excellent opportunity for professional development and advancement.

Immediate openings in our St. Louis general offices and occasionally in our San Francisco branch office. Confidential interviews can also be obtained at Washington, D.C., and Portland, Oregon.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

Please write fully, including salary data, to

SVERDRUP & PARCEL, Inc.
ENGINEERS — ARCHITECTS
915 Olive St. Louis 1, Mo.

*We are designers of the technical facilities for the Arnold Engineering Development Center, operated by our subsidiary, ARO, Inc.

HIGHWAY & BRIDGE
ENGINEERS

Well established Consulting Engineer has immediate openings for engineers experienced in Highway and Bridge design and construction. Permanent positions. Liberal Employee benefits. Salaries commensurate with education and experience. Send complete resume including salary requirements and availability.

WILLIAM H. McFARLAND
ENGINEER
333 Front Street Binghamton, New York

YOUNG ENGINEERS

College graduates 0-3 years experience.

College graduates with three to five years experience in bridge design.

Positions available in the bridge design section which has long term contracts and is expanding to meet demands for consulting engineering services for bridge projects.

Opportunity to gain experience and to practice engineering under outstanding bridge engineer who has 25 years of practical experience. Chief of Section was also at one time professor at large university and is author of several structural design text books used in over 90 engineering schools. With the teaching and writing background he fully appreciates the necessity and obligation of training young engineers.

Information required—Submit resume giving personal, education, and experience information. Provide references. State when you would be available for interview.

PATCHEN & ZIMMERMAN
ENGINEERS
525 TELFAIR STREET
AUGUSTA, GEORGIA

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

ASSISTANT CHIEF ENGINEER

C.E. experienced in structural steel detailing and design, checking and estimating to understudy for Chief Engineer with long established structural steel fabricator. Submit detailed resume and photograph.

C. E. MORRIS COMPANY
745 Curtis Avenue Columbus, Ohio

STRUCTURAL ENGINEERS

Large architectural engineering firm in Dallas, Texas, with highly diversified practice, needs structural engineers with building design experience. Permanent positions. Write George L. Dahl Architects & Engineers, 2101 North St. Paul Street, Dallas, 1, Texas. State qualifications, experience record and minimum salary expected.

SALES ENGINEERS

A major steel company has need for sales engineers to promote and sell fabricated products in middle Atlantic states. Excellent opportunities for men 25 to 30 years old with engineering background and a desire for sales work. Attractive starting salary with company car, expenses and bonus plan.

SW-4684, Engineering News-Record,
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

SAN FRANCISCO

BECHTEL

SENIOR ENGINEERS AND DRAFTSMEN

CIVIL
Experienced in site development, storm drainage or water supply.

HYDRO
Recent work experience on concrete or earth dams; power houses or penstocks.

Liberal relocation allowances for you and your family.

Send Resume to:
Manager of Employment & Placement
Industrial Relations Division

Bechtel
Corporation
220 Bush St., San Francisco 4, Calif.
Recruiting offices also in New York, Los Angeles and Houston

PUBLIC WORKS SUPERINTENDENT

College Graduate for 5,000 population southern New Hampshire community, salary open. Send detailed resume to:

P-5565, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

FIELD ENGINEER WANTED

Preferably civil engineering graduate with several years field experience by large heavy construction contractor to lay out work, make simple estimates and assist superintendent. Permanent position, location Maryland. Excellent opportunity for ambitious man as several of our executives have started with us in similar positions. Please state age, education, short experience outline, and salary desired.

P-5590, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Illinois

REFINERY SUPERINTENDENT

Must be top flight.
Location San Francisco Bay area.
Submit detailed experience.

P-5588, Engineering News-Record,
68 Post St., San Francisco 4, Calif.

Construction Superintendent Wanted

Superintendent for Engineering type construction such as pumping stations, sewage and water treatment plants and flood control work. Steady employment for aggressive qualified man. Prefer man with engineering background. Send complete details on background and education. Only those well qualified need apply. Must be willing to move around southern states at job completion.

P-5505, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

STRUCTURAL ENGINEER

Steel fabricator, Philadelphia area, wants experienced design man. Good working conditions. Steady employment. Prefer older man. Write full particulars to:

P-5656, Engineering News-Record,
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

Highway & Bridge Engineers Designers & Draftsmen

Career opportunities for men interested in professional recognition. Excellent working conditions and employee benefits including liberal retirement program.

Openings in Charleston, West Virginia.

Air Mail Resume to R. L. SHAW, Personnel Director

MICHAEL BAKER, Jr., INC.

BAKER BLDG. *Consulting Engineers* ROCHESTER, PA.

CIVIL ENGINEERS DESIGNERS DETAILERS

ATTRACTIVE POSITIONS ARE AVAILABLE FOR QUALIFIED MEN WHO WILL ACCEPT RESPONSIBILITY AND WISH TO MAKE A CAREER IN DESIGN OF HIGHWAYS, EXPRESSWAYS AND ALLIED CIVIL ENGINEERING WORK. THERE IS AMPLE OPPORTUNITY FOR PROFESSIONAL ADVANCEMENT BASED UPON MERIT. SALARIES ARE REVIEWED AT REGULAR INTERVALS. PAID VACATIONS, SICK LEAVE AND MOVING ALLOWANCE. EXCELLENT RETIREMENT AND BENEFIT AND HOSPITALIZATION PLANS.

OVERSEAS OPENINGS FOR GRADUATE CIVIL ENGINEERS WITH SEVERAL YEARS HIGHWAY ENGINEERING EXPERIENCE.

WRITE FULLY TO

SVERDRUP & PARCEL ENGINEERING CO.

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HIGHWAY & BRIDGE ENGINEERS

Several Openings For Designers, Draftsmen and Detailers

MATERIALS ENGINEER

Mature Man With Minimum of 10 Years Experience in Concrete & Materials

CONCRETE INSPECTORS

Experienced in Batching, Mixing, Placing, Prestressing and Other Phases of Concrete Inspection. Positions Available in Illinois.

Generous Annual and Sick Leave, Hospitalization, Group Insurance, Profit Sharing.

PLEASE WRITE OR CONTACT

JOSEPH K. KNOERLE & ASSOCIATES, INC.

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DEPUTY RESIDENT ENGINEER

For a $40 million rockfill and concrete dam in Iraq. Two-year contract; approximately 3-year completion schedule. Family housing at site, but no local educational facilities for children. Fill type dam construction experience required—preferably rockfill. Must be fully capable of assuming duties of Resident Engineer as required. Position is available immediately. Excellent salary. Please send complete personal and experience record to Hugo O. Niemi, Personnel Manager.

HARZA ENGINEERING CO.

400 W. Madison St. Chicago 6, Ill.

CONSTRUCTION SUPERVISORS

Supervisory personnel with experience in responsible supervision and inspection of concrete and earthwork construction to serve as Construction Supervisors on Dams and Flood Control projects in Pennsylvania. Engineering degree not required.

Salary open. Send resume of experience, salary requirements and references to:

P-5583, Engineering News-Record,
Class. Adv. Div., P.O. Box 12, New York 36, N. Y.

RESIDENT ENGINEERS

Graduate Civil Engineers with experience in concrete and earthwork construction to serve as Resident Engineers on Dams and Flood Control projects in Pennsylvania. Design Engineers with related experience are also desired.

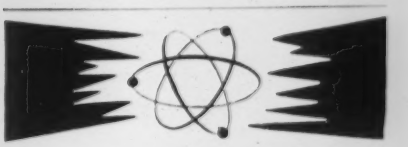
Salary open. Send resume showing experience, salary requirements and references to:

P-5586, Engineering News-Record,
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

CHIEF ESTIMATOR

To supervise construction estimating group engaged in computing complete costs for erecting chemical process plants. Experience in supervision and estimating in same or closely related field required. Replies treated in confidence. Our employees are aware of this ad. Send replies to

P-5572, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.



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Put Your Stress And Weight Experience To Work On Nuclear Powered Flight

You can start right away—without any nuclear training—helping develop an engine with a nuclear power source.

Here at General Electric we have already reached the product stage in this promising new area. However some problems in stress and weight remain to be solved, which means your skills will be fully utilized, and where nuclear applications are needed you will receive thorough grounding in atomic fundamentals.

You will work in small groups with the most modern and extensive facilities for research and testing and with liberal technical assistance.

Starting salaries are high, benefits outstanding. Your professional development is encouraged through in-plant technical and managerial seminars and a Full Tuition Refund Plan for graduate study.

Send us your resume today All information will be kept confidential and you'll hear from us promptly.

Openings in
CINCINNATI OHIO
and
IDAHO FALLS IDAHO

Write in confidence, stating salary requirements to location you prefer:

•

J. R. Rosselot
P.O. Box 132
Cincinnati, Ohio

•

L. A. Munther
P.O. Box 535
Idaho Falls, Idaho

GENERAL ELECTRIC

POSITIONS WANTED
(Continued from page 143)

Structural Steel: 21 years in detail, checking and chief draftsman. Age 45. Desire to relocate. PW-5662, Engineering News-Record.

Construction Management—BSCE, 37, excellent experience in heavy construction including estimating, bidding and construction of heavy concrete structures, earthworks and hydro-projects, interested in salary-bonus arrangement with moderate size contractor in Western states. Now employed at $12,000 plus. PW-5661, Engineering News-Record.

Reg. C.E. age 42, experience primarily bridges, administration, design, maintenance, contracts, estimating, with broad general background. Prefer work with contractor where ambition, ingenuity, and responsibility will pay off. PW-5660, Engineering News-Record.

Building Construction Field Supt: industrial, commercial, institutional, churches, etc., similar position in field desired. 25 years exp; Resident of N. J.; Can travel. PW-5659, Engineering News-Record.

Civil Engineer—10 years construction experience includes field layout, estimating, purchasing & expediting. Able to handle job from bid to completion. Desires job with general contractor. Minimum salary $10,000. Prefer Mid-West. PW-5652, Engineering News-Record.

Engineer, civil, structural, desires foreign or domestic work for planning, design, construction supervision of railroad, highway bridges, building, etc. 20 years experience field and office. Can supervise work. Speaks Spanish. PW-5618, Engineering News-Record.

Two young men desire positions as Engineering Geologist sand Geotechnician. Experienced in testing, control, and design of materials and foundations. Materials surveying and exploratory drilling. Soils profiles, and Eng. Geol. reporting. PW-5613, Engineering News-Record.

Accountant office manager (M.B.A., C.P.A.) seeking suitable position. Thoroughly experienced accountancy, costing, finance, procedures, administration purchases, stores, large equipment and labor force. 24 years with heavy (mostly foreign) construction companies (roads, bridges, earthmoving, aerodromes, housing, etc.). Quick thinker, energetic action, profit-cost minded. Resume on request. PW-5665, Engineering News-Record.

Estimator—age 42, take off, price, negotiate, purchase and expedite, bldgs., water and sewage treatment plants, pumping stations, bridges, dams, hydro plants, steam plants. Proven record, best references. Salary high. PW-5610, Engineering News-Record.

Graduate C.E. age 37, several years in design of framed buildings, highway bridges in structural steel, reinforced and prestressed concrete. Shell roofs. Chicago area preferred. Will consider other location. PW-5608, Engineering News-Record.

General Supt. or Project Manager. Have 28 years of experience in heavy construction. Also have large following of skilled workmen, heavy grading, earthfill dams, super highways, general road construction, iron ore stripping, iron ore producing, leeve construction, and airport construction. Will be available in the near future, desire position with salary plus commissions. PW-5609, Engineering News-Record.

Civil Engineer, 12 years experience design and installation sewage treatment and collection, water systems and other civil projects, desire to relocate in Florida or South-East. Presently employed by consulting engineer, $6,300.00 minimum. PW-5637, Engineering News-Record.

Civil Engineer, B.S. Reg. P.E. 27, 3 years experience chief estimator and project manager paving, grading, sewers, site improvements, 1 year general construction, good administrative ability, business minded. Desires responsible position contractor or consultant. PW-5625, Engineering News-Record.

Chief Estimator, age 35, civil engineer, desires position with new company. Position must include opportunity to become part owner. Experienced as building and heavy construction estimator on projects up to ten million. PW-5648, Engineering News-Record.

Project Manager for building contractor— Graduate civil engineer, age 30. Desires position leading to top management with growing firm. Presently employed. PW-5612, Engineering News-Record.

SEARCHLIGHT SECTION

(Classified Advertising)

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Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.

GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

CONTRACT WORK WANTED

Structural Engineering Firm, extensive experience in design of highway and railroad bridges, presently available, reputable, licensed. CWW-5510, Engineering News-Record.

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Want a Florida Construction Co.? Need financing for a new business. High type nucleus organization with Florida experience available & ready. BO-5612, Engineering News-Record.

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ARCHITECTURAL ENGINEERING
WILSON *Engineering Corp*
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WANTED
200 to 300 ton capacity
3 or 4 compartment
AGGREGATE MATERIAL BIN
in excellent condition
GRAYSON LUMBER CO.
Birmingham, Ala.

FOR RENT
NORTHWEST MOD. 6 PULLSHOVEL OR SHOVEL
NORTHWEST TRUCK CRANE 20 TON
New Rochelle Construction Co., Inc.
505 Fifth Av. NE 2-0700 New Rochelle, N. Y.

JOY 500 COMPRESSOR
1951 Diesel Power UD 18 on 4 pneumatic tires.
Almost Unused — Price $5,200.00
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If there is anything you want that other readers can supply
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Model 1520 Unit Crane, Self Propelled, 10-ton.
Model SP-424 Lorain Crane, Self Propelled, 22½-ton.
Model-80, Pitman Truck Crane.

FOR LEASE
Model 1520 Unit Crane, Self Propelled, 10-ton.
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Type 32M Marion Truck Crane, 25-ton.
Equipment purchased late 1955, used very little.
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120 ton, four compartment Johnson automatic batcher and mixing plant, U.S. Engineer Specification. Available Aug. 1st.
ALEXANDER & REPASS
39th & Fessenden N.W., Washington, D. C.

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MARION 93M SHOVEL
Serial 21514 with Cat. 337F Engine and Torque Converter. Purchased new July 1956. Excellent condition 2 buckets 2½ and 3 yd. $65,500.00. Located Birmingham, Alabama—Phone LYric 2-8164.
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3700 10th Ave. North Birmingham, Alabama

FOR SALE
40 TON DIESEL LOCOMOTIVE CRANE
Orton Serial #43915—built 1942, with 75 ft. boom. Air operated travelling brakes and clutch controls. Powered by Caterpillar D-17000 engine. Can be returned to U.S. free of duty.
ANDREW MERRILEES LIMITED
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Telephone ROger 9-1358

49—SKID TANKS, 290 GAL.
36" dia. x 66" long on Steel Skid Angles
Unused—painted—$35.00 each FOB our Shop
BRANDYWINE VALLEY FABRICATORS
Box 21—Coatesville, Pa.

USED PAVER
1951 Ransome 34E Dual Drum Paver with Dual Water Tanks, Hydraulically controlled distributor bucket and 6 cylinder Cummins Diesel Engine. New crawler drivers, new transfer chute liners, and in excellent condition throughout. Paver Serial No. 15713. Only $13000 00. Call or write
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Heavy Duty Electric
POWER CABLE
Tremendous Inventory
Low, low Prices — CALL COLLECT!
COLEMAN CABLE & WIRE COMPANY
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30 ton Browning Diesel Loco. Crane. 1947.
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Lidgerwood 2D Hoist & Swinger, 90 HP Buda Diesel Engine.
30 ton American #2 Guy Derrick. 90' Bm.
1½ yd. Lima 602 Diesel Crane.
¾ yd. Lima #34 Diesel Crane. 90' Bm.
60 ton Manitowoc 3900 Erection Crane. Rent.
100 HP Lucey Portable Boilers. 200# WP.

WHISLER EQUIPMENT COMPANY
Affiliated With
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NEW AND REBUILT
STORAGE BATTERY
LOCOMOTIVES
1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Pennsylvania

Slightly Used 80D Northwest Double Stick Shovel Attachment

Excellent Condition

HODGE & HAMMOND, INC.
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Phone—Kilpatrick 2-2400

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1—Columbia Model 8, 2-block machine with pallet feeder, agitator, off-bearer with 4", 6" and 8" molds. Special molds 4" solids ½ sash and cap.
35 steelracks
1—30 HP Cleaver Brooks Boiler 100 psi
1—40' bucket elevator frame
1—200 amp Lincoln Welder
1—Cutting torch
1—20' belt (14") conveyor
1000—¼" x 18" x 20" steel Pallets
Above equipment approximately four months old. Price $21,000 complete for above
5—Ford trucks, 1050 Models, F-7, 170½" wheel base with Jaeger truck mixers, 1950 Model, 5 cu. yds. $3,000 each.

Located at or near Richmond, Va.

P. O. Box 9138
Richmond 27, Va.
Phone Richmond 5-7491

FOR SALE
MANITOWOC LIFTCRANE
MODEL 3000B AND 3500
FORSYTHE EQUIPMENT CO., INC.
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SAVE THOUSANDS!
UNUSED 6x6 ARMY TRUCKS

*2½-TON, GMC & INTERNATIONAL

- **From Government Storage!**
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Why invest in expensive new trucks and equipment needed to get the roughest off-road jobs done when you can save up to $3,000 on ONE truck alone—and get the job done right!

Compare our tandem axle trucks with front wheel drive, 10 forward speeds, overdrive and new mud and snow tires with similar equipment elsewhere. See for yourself how TWO of our trucks cost you even LESS than one new truck!

If planning to buy a truck, get in touch with us right away. There's no obligation . . . and we deliver on approval!

For Specifications, Prices, Delivery Write, wire or phone COLLECT—JAckson 5-7841
Milton Y. Toombs, Jr. Sales Manager

MEMPHIS EQUIPMENT CO.
Construction and automotive equipment and parts
766 S. THIRD ST. • MEMPHIS, TENN.

FOR SALE or RENT

(New) 4500 Manitowoc D/L—140' Boom—Wide Cats—long crawlers located factory
(New) 80 D Special Northwest 50T Cap—2 Booms—Pile Driving Erecting D/Line
(New) 80 D Northwest Combination D/Line/Shovel Both located Hammond.
10—Euclid Bottom Dumps. (2) Euclid Water Wagons 5000 Gal.
5—D 8 Tractors and Scrapers Caterpillar 80.
3—HD 20 Tractors
1—HD 20 4 CY Front End Loader
2—#12 Motor Graders
1—D 8 Tractor and 50 Ton Compactor

A. L. DOUGHERTY CO.

Phone Chicago Es 5-7676 — 3333 SHEFFIELD AVE. HAMMOND, IND. — Phone Hammond We 1-9673

USED TANK TRAILERS

For Sale or Lease

First Offering! Used aluminum trailer tanks, capacities 7,600 to 7,980 gallons. New tires. Priced from $7,900.00. Also steel tandem units 6,300 to 7,200 gallons. From $2,775.00. Contact Butler Manufacturing Company, 900 Sixth Avenue, S.E., Minneapolis, Minnesota. Telephone FEderal 3-8111.

Kansas City Area. Steel tandem units 5,000 to 5,500 gallons. From $1,850.00. Also anhydrous ammonia and propane trailers located in Texas. Contact Butler Manufacturing Company, 7300 East 13th Street, Kansas City 26, Missouri. Telephone BEnton 1-7400.

Birmingham Area. Steel tandem units, capacity 5,200 to 5,600 gallons. Priced from $1,900. Contact Butler Manufacturing Company, 931 Avenue "W" Ensley, Birmingham 8, Alabama. Telephone 6-5181.

New York Area. Steel tank trailers 5,100 to 6,500 gallons. Tandems only. Priced from $2,275.00. Contact Butler Manufacturing Company, Suite 602, 103 Park Avenue, New York 17, New York. Telephone MUrray Hill 3-9473.

Chicago Area. Steel tandem units, capacities 5,200 to 7,440 gallons. Priced from $2,100.00. Contact Butler Manufacturing Company, Suite 1100, 3414 N. Harlem Avenue, Chicago 34, Illinois. Telephone NAtional 2-7171.

AGGREGATE BATCHING PLANT: 200 ton Bin, 1200 bbl. Cement Bin, Bucket Elevator, Cement Screw, 4 Beam Scale, etc.
OVERHEAD ELECTRIC TRAVELING CRANES: Two 25 ton, 56' span; one 10 ton and one 20 ton, 56' span; one 6 ton, 79' span, bucket operating, cage control, 230 volt, D. C.
TRUCK CRANE: Lorain T20 complete with crane boom, shovel front and backhoe.
DRAGLINES: One Monighan 7-W, full electric with 7 and 8 yd. buckets. Ward Leonard control. Bucyrus Erie 54-B and 120-B. Marion 151-M.
CLAM SHELL BUCKET: Williams 1¼ yd. capacity, excellent condition.
LOCOMOTIVES: Diesel Electric, standard guage, one 25 ton and one 80 ton.
MOTOR: G. E. 50 H.P., 2200 volts, 3 phase, 60 cycle, 450 RPM, with control equipment.
PUMPS: 2—5 stage, 450 H.P., submersible, capacity 3000 GPM@500' head. 2—150 H.P., 1000 GPM@500' head.
BELT CONVEYORS: 60" x 170 ft. and 60" x 300 ft., complete.
MINE HOISTS: Double clutched drums 10' dia., 10' face, 1⅛" rope, 1000 FPM, post brakes, 1250 H.P., 3 phase, 60 cycle, 2200 volts, complete with controls. One double drum 12' dia., 30,000# single line pull, 1500 H.P., 1200 FPM.
JAW CRUSHERS: 10 x 15, 10 x 20, 12 x 24, 15 x 36, 18 x 36, 24 x 36, 25 x 40, 30 x 42, 40 x 42, 42 x 48.
GYRATORY & REDUCTION CRUSHERS: All sizes.

We Buy and Sell Equipment Throughout North and Central America

A. J. O'NEILL
Lansdowne, Pa.
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DIESEL ELECTRIC LOCOMOTIVES

STANDARD GAUGE

25 - 35 - 40 - 50 - 65 - 75 - 100 tons

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7010 Empire State Building
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CRANES FOR RENT

CRAWLERS — Capacities to 60 tons, Booms to 180 ft.
TRUCK CRANES — Capacities to 35 tons, Booms to 130 ft.

P and H. Lima and Manitowoc.
Top-Condition erection cranes

ROGER SHERMAN
CRANE SERVICE, INC.
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2—200W Bucyrus-Erie Draglines
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2—1201 Lima Shovel & Drag.
1—120B Dragline Boom
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1—44B B-E Comb. Drag. & Shovel
4—36TD Euclids End Dump

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LOW COST INSTALLATION AND OPERATION
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IMMEDIATE SHIPMENT
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Aluminum Co. Of America 75
American Advertising Service 82
American Bridge Div. U. S. Steel Corp. 118
American Hoist & Derrick Co. 99
American Vitrified Products Co. 5
Armco Drainage & Metal Prods. Inc. 53
Atlas Powder Co. 60

Barco Mfg. Co. 67
Belmont Iron Works 120
Bethlehem Steel Co. 117
Briggs & Stratton Corp. 9
Buda Div. Allis-Chalmers Mfg. Co. 59
Byers Co., A. M. ..... 2nd Cover

Caterpillar Tractor Co. 32
Chain Belt Co. 103
Chicago Pneumatic Tool Co. 138
Concrete Reinforcing Steel Institute 13
Concrete Surfacing Machinery Co. 84
Contractors Service Ltd. 115
Copperweld Steel Co. 112

Dudgeon Inc., Richard 94
Durojoint Tech. Info. 42
D-r-O-Wal 121

Fennel Instrument Corp. of America 71
Flexible Road Joint Machine Co. 46, 47
Fort Pitt Bridge Works 29
Fruehauf Trailer Co. 76, 77

Gar Wood Industries, Inc. 38, 39
Goodyear Tire & Rubber Co. 1
Granco Steel Products Co. 66
Griffin Wellpoint Corp. 119
Gunite Concrete & Construction Co. 96

Hefling Co., Frank 98
Hendrix Mfg. Co., Inc. 104
Hyatt Bearings Div., G.M.C. 18

Ingersoll Rand Co. 133
Intrusion-Prepakt, Inc. 48
Irving Subway Grating Co. 15

Jackson Vibrators, Inc. 31
Jenkins Bros. 16
Jersey Bolt & Spike Corp. 106
Jones & Laughlin Steel Corp. 125

Kaiser Aluminum & Chem. Corp. 68, 69
Keasbey & Mattison Co. 107
Keppers Co., Inc. (Durethene Div.) 64

LeRoi, Div. Westinghouse Air Brake Co. 40
LeTourneau-Westinghouse Co. 86-91
Liberty Mutual Ins. Co. 110, 111
Lipe-Rollway Corp. 85

Macomber, Inc. 63
MacWhyte Co. 70
Mahon Co., R. C. 109
Manitowoc Engineering Works 43
Master Builders Co. ..... 3rd Cover
McKiernan-Terry Corp. 96
McKinney Drilling Co. 151
Massey Harris Ferguson Inc. Ind. Div. 131
Miller Electric Mfg. Co. 94
Minnesota Mining & Mfg. Co. 84, 98, 106, 114
Moretrench Corp. 108, 137
Morris Machine Works 58

National Tube Div., U. S. Steel Corp. 12
Naylor Pipe Co. 97
Noble Co. 100, 101
Northwest Engineering Co. 3

Page Fence Assn., Amer. Chain & Cable Co., Page Steel & Wire Div. 93
Pennsylvania Drilling Co. 94
Phoenix Bridge Co. 106
Portland Cement Assn. 83
Prime Mover Co. 82

Raymond Concrete Pile Co. 4
Reliance Steel Prod. Co. 10
Revere Copper & Brass Inc. 6, 7
Reynolds Metal Co., Inc. 92
Rilco Laminated Prod., Inc. 96
Rockford Clutch Div., Borg-Warner Corp. 80
Roebling's Sons Corp., John A. 81
Rollway Bearing Co. 56
Ryerson & Sons, Inc., Jos. T. 114

Sauereisen Cement Co. 80
Sauerman Bros., Inc. 116
Sonoco Products Co. 72, 73
Stang Corp., John W. 95
Steelcraft Mfg. Co. 79
Superior Concrete Accessories 65
Symons Clamp & Mfg. Co. 2

Tapecoat Co. 113
Templeton, Kenly & Co. 120
Texas Co. ..... 4th Cover
Timber Engineering Co. 8
Timber Structures, Inc. 115
Timken Roller Bearing Co. 11

U. S. Rubber Co. 20

Vitro Corp. of America 14
Vulcan Iron Works 84

Wallace Prod. Co. 108
Westinghouse Electric Corp. 54, 55
Wild Heerbrugg Instruments, Inc. 112
Williams Equipment & Supply Co. 120

Yeomans Brothers Co. 62
Youngstown Sheet & Tube Co. 78

Professional Services 150

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 143-145
Educational 146
Notices
Proposal 140-142
Equipment
(Used or Surplus New)
For Rent, Sales Wanted 146-150

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Clean Stream Advance

THE UNIQUE CHLORIDE CONTROL SYSTEM proposed by the Ohio River Valley Water Sanitation Commission (ENR July 18, p. 30) has already attracted attention all over the country—from many industries as well as pollution controllers. And well it should, for the idea of a proportionate discharge method of allotting the assimilative capacity of an entire stream has wide usefulness. Not only would it be applicable to river basins over the world, but also to many pollutants besides chloride—such as phenols, sulphates, hardness-causing compounds—and even to biochemical oxygen demand.

The philosophy of allotting the assimilative capacity of a stream in proportion to water flow and pollutant discharge is not new, but the current proposal of mechanics for such allotment, coordinated over an entire river basin, represents a unique achievement of the Orsanco engineering staff. Perhaps the closest approach now operable obtains in the Ruhr Valley in Germany where a central agency has more or less absolute control over industry in regard to pollution. There, if two plants were to discharge the same pollutant in total loading in excess of limiting river values, one plant would be ordered to build the necessary treatment facilities and the cost would be apportioned among both plants.

The need for a workable proportionate discharge system has been apparent for years. For one thing the stream quality requirements of various regulatory agencies give no clue as to the portion of responsibility to be assumed by a particular treatment facility for a pollutant load that is to be curbed. For another, the means of enforcing the responsibility are generally lacking.

Among significant aspects of Orsanco's proposed chloride control system are the criteria to be met. If adopted, the recommended limiting value of chloride would be the first to be set by a regulatory agency for reasons other than public health, as far as is known. The limiting value —125 ppm monthly average—was set because of the corrosive effect of chloride present in water used by industry for cooling purposes.

It should also be noted that limiting values of other pollutants may in the future be controlled by industrial requirements as opposed to public health. Phenols, for example, have been found to contaminate ion exchange materials at lower concentrations than they affect taste and odor in public water supplies. Hardness causing pollutants may also be in this category.

Still another progressive aspect of the proposed control system is its requirement of a periodic flow announcement system to advise participants of dilution waters available. Such basinwide communication on a weekly basis would also be unique in this country, it is believed. Both the Corps of Engineers and the U. S. Geological Survey concur in its workability.

It is too early to determine the proper amount of personal accolade that should be bestowed on the Orsanco staff, but to executive director Edward J. Cleary and the Messrs. Robert K. Horton, Harold W. Streeter, W. G. Hamlin and David Robertson must go the profession's appreciatoin for an imaginative and most far reaching proposal. It is truly in the pioneering tradition of Orsanco, and promises to be a fitting capstone to the eight state agency's earlier technical achievements in setting up an exemplary river monitoring system and sparking current studies of toxicity effects.

Good Omens

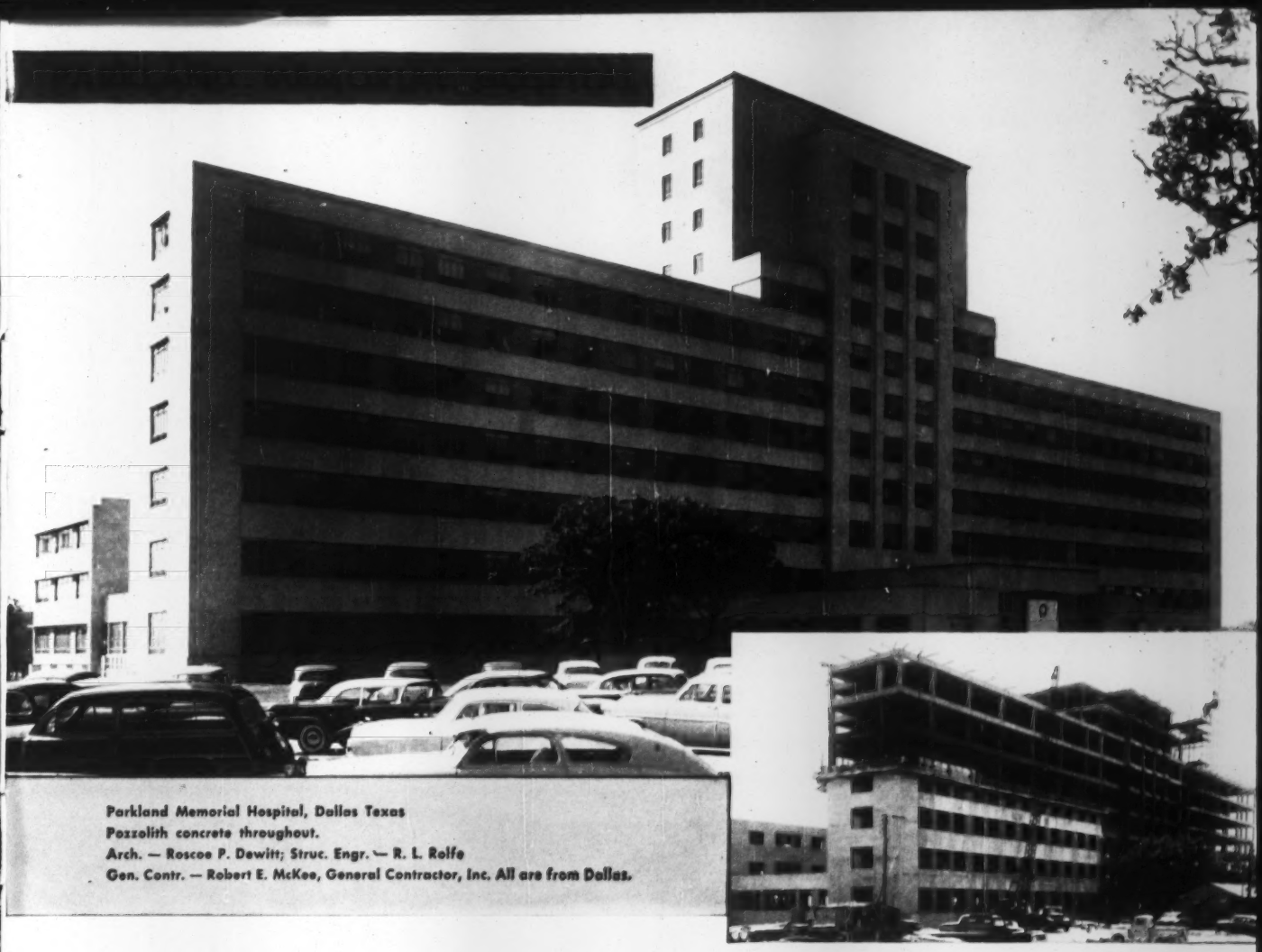
OUT OF THE WELTER of wage negotiations, which have upset the construction industry in city after city across the country lately, two hopeful signs have appeared. There is the steady growth of the long term contract—3 to 5 years—which should lengthen the period between strikes and threats of strikes. This, in turn, should eliminate some of the waste of time to which contractors and labor leaders annually have been subjected even before the serious business of bargaining can begin. And second, and even more important, several of the recent wage negotiations were conducted in an atmosphere of mutual concern over rising construction costs.

There has been a singular lack of statesmanship applied to this problem heretofore, bargaining being conducted on the premise that if the wage increases could be passed along to the public they were acceptable. Unfortunately, with labor making unreasonably high original demands for bargaining purposes, and with contractors anxious to settle so they could get back to work, the effect on the public was too often overlooked.

Now, however, in the face of slowing construction, contractor opposition is stiffening, and some unions have tempered their demands. It is beginning to dawn that some construction is too costly to interest buyers, and that unreasonable wage-price increases can only make matters worse.

The theory of prosperity based on increasing purchasing power is a good one, so long as there is an actual increase, but if the effect of each wage rise is nullified by higher prices for the things the wages will purchase, the theory disappears, and only inflation is left. And higher prices can be avoided only if productivity is so increased—and self-restraint so exercised by both management and labor—that unit costs do not go up.

Labor economists and national labor leaders have seen this situation developing for some time, but have been ineffective in convincing local labor leaders that wage demands must be tempered as a matter of self interest. Now that construction costs are affecting construction volume, the truth is being realized. The signs, however small, that construction labor and construction management are becoming concerned about the situation is a good omen.



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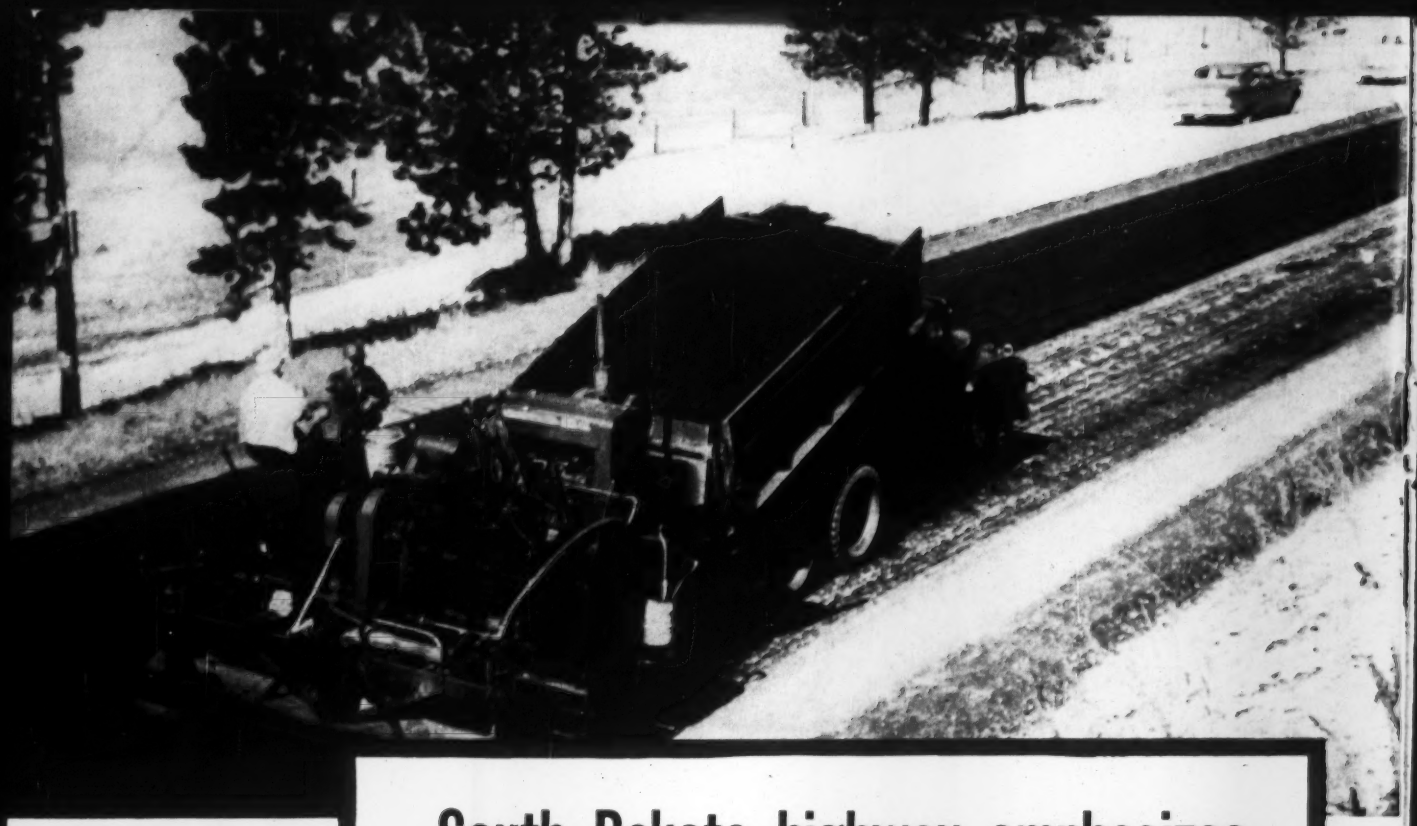

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